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ALBANY

MEDICAL ANNALS

Journal of the Alumni Association of the
Albany Medical College

VOLUME XXV

Ἀσφαλὲς καὶ ἔμπεδον ἔστω τὸ σὸν ἕδος. Ἐκ σκότου μὲν ἔξαγε
φάος, ἐκ δὲ πάθους ἀναψυχήν

ALBANY, N. Y.
PRESS OF BRANDOW PRINTING COMPANY
1904

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Vol. xxv JANUARY, 1904 No. 1

Twenty-fifth Year — Jubilee Number

ALBANY MEDICAL ANNALS

Original Communications

THE MEDICAL ANNALS: AUTOBIOGRAPHICAL.

By FREDERIC C. CURTIS, M. D.,
Professor of Dermatology, Albany Medical College.
AND
WILLIS G. TUCKER, M. D.,
Registrar and Professor of Chemistry and Toxicology, Albany Medical College.

The first issue of the Annals, as we familiarly call our medical periodical whose quarter centenary we celebrate with this issue, bears the date of February, 1880. It came into being in our minds sometime before that, and took definite shape one July day of the year before, in the course of a long ride which one of us took with Dr. Vander Veer out across the Helderbergs. That was its inception.

It grew out of its antecedents, after a plan unique in journalism. In 1864 there issued from the press of Joel Munsell, a name identified with the printed history of early Albany, a volume entitled "Annals of the Medical Society of the County of Albany." The title was no doubt suggested by the publisher, who had used it in connection with the numerous works of historic material which he had produced. This volume contained in 400 pages a record of the first half century of the proceedings of the Society from its incorporation in 1806, together with biographical sketches of nearly one hundred deceased members, written for the most part by its editor and author, Dr. Sylvester D. Willard. We cannot put too high honor on this historian of our local profession, a contributor likewise to much else that was good, who, laying out for the sphere of his work the past rather than the present, by arduous research placed in form for permanent preservation the annals of our old Society during its early years and of the men who constituted the medical profession prior to 1850. It is fitting that now when our Society is on the eve of its centennial it should pay a tribute to its conspicuous annalist and to the men who made its early history, many of them eminently worthy of emulation for their devotion to all that is best in our profession. And the day of small things, small as compared with present day accomplishments, should not be forgotten in a historic sketch which likewise deals with the genesis of our journal, in which at the close of its twenty-fifth year we of Albany county have reason to entertain sentiments of satisfaction.

The title page of Dr. Willard's book has these lines from the *Iliad:*

> " A wise Physician skilled our wounds to heal,
> Is more than armies to the public weal."

Some were among the number who filled our places during the first half of the century whose names are well known in medical science, while many of them filled important places in this community; and we are under lasting obligation to one who has relieved us of the painful thought of allowing to go into forgetfulness those who passed long and useful lives in a worthy profession before us on the stage.

In 1872 a volume of 500 pages, similar in scope, covering the period from 1850 to 1870, was published by the Society under the editorship of Drs. James S. Bailey and Charles H. Porter, both of whom have passed away, the latter just recently; which brings us to the periodical whose name came very naturally to be that of its earliest progenitor, "The Medical Annals, a Journal of the Medical Society of the County of Albany."

The first issue of the Annals contains the record of its formal beginning, in this resolution adopted at a meeting of the Society held November, 1879:

Resolved, That a committee of five be appointed to investigate into the feasibility of publishing the old minutes of the Society, beginning with 1870, in periodical installments, adding to it the current minutes of the Society paged separately, together with such items of interest as may appear advisable.

This action having been taken, the following committee was appointed and they subsequently became and for years continued to be the editors and committee of publication: Drs. F. C. Curtis.

A. Vander Veer, J. B. Stonehouse, Lorenzo Hale and J. D. Featherstonhaugh.

So far as we know the plan and purpose of this periodical, as begun and for a few years prosecuted, was unique. It was a Society journal, which was to carry in each issue signatures of a volume of Transactions covering ten years past, and with this other parts to be made up of current matter of local interest, the Society proceedings and papers, comment on local matters, hospital notes and legislative reports. In later years the ANNALS became more distinctly a college journal, but from its first issue the fact that Albany is conspicuously a medical college centre was taken account of and no subsequent issue failed to contain "alumni notes." Its prospectus referred to this and subscribers were at once on our mailing list from graduates of the college remote from this locality. The first number contained an advertisement page of the college thereafter carried regularly, and likewise of the Albany, St. Peter's and Child's Hospitals. Our advertising pages were models of uncriticizable correctness, being made up wholly from local business concerns and enterprises. During the first year it appeared modestly but once in two months; since it has been a monthly.

It was beyond our thought to make it at the outset more than a local journal, under the patronage of a County Medical Society contesting that of Erie County for third place in point of membership in the State; but in the prospectus and the prefatory editorial reference was made not only to the place a local journal might fill, and the claim for Albany with its considerable surrounding population and medical interests as the place for one, but also to the fact that outside of New York City there was no medical journal save in remote Buffalo nor in New England nearer than Boston, and the patronage of the physicians of this region was solicited with a promise to care for all its medical interests. Reference was soon made to the assurance of financial success and the interest especially of the alumni of the medical college.

The writers of this sketch would find much pleasure, turning over the pages of the first three years of the ANNALS, bound as we have them, advertising pages and covers, in one large tome, in bringing out many interesting historic facts that catch the eye regarding men and measures of twenty-five years ago which we are sure would make pleasant reading if space permitted, which it will not.

A few definite things gave it origin and one of the chief was to print in installments the proceedings of the Society from 1870 to 1880. In three years this was accomplished, and volume III of the "Transactions of the Medical Society of the County of Albany," was completed. The volume contains between 400 and 500 pages, made even with considerable condensation from ten years of the Society work and records; and equal in size to its predecessors, which between them covered sixty-five years. They were among the most active, strenuous years of the Society's existence, as those who lived in them well remember. The profession of this city in the early half of that decade was passing through a period of somewhat earnest struggle, chiefly regarding the conduct of the affairs of the medical college, and there was a partisanship in which few failed to have a concern. This does not appear conspicuously in the published record, but it contributed to full meetings and worthy material which is of historic value in the growth of medical science. Food is more savory for a modicum of spice, and the outcome was beneficent for all concerned.

To preserve the identity of a volume constructed in this fashion on an installment plan, there were secured for it portraits of a dozen or more conspicuous members of the Society, mostly deceased, which were offered and added to the book as the files composing it were sent by subscribers for binding, in a cover uniform with preceding volumes. It thus contains admirable portraits of Drs. Thomas and Edward Hun, the two McNaughtons, the elder Boyd, March, Quackenbush, Vanderpoel, Robertson, Armsby, the elder Bigelow, "preserving in their appropriate place the faces of men of mark in our profession." Sixty-five sketches of deceased members, the collection of the matter for which extended over three years and including note of every one not previously accounted for, with a chronological register of all members of the Society, are included in the volume, effecting a record which is a credit to the Society as the early work of the MEDICAL ANNALS, and of which the early editors have a conscious pride. Besides this, 500 pages of current matter for the three years were printed, with some contributed material from outside this channel.

The ANNALS, having accomplished its primary mission, was not given up, but continued as a journal of the Society for five years longer, enlarging its field and scope to some extent as a local journal. Then, in 1888, the Albany Medical Library and Journal Association was formed, and it passed into their hands with little change in the editorial committee, the work being chiefly borne by Dr. Lorenzo Hale as managing editor. A considerable exchange list had accumulated and books for review, which furnished material for a reading room, the medical college supplying the necessary apartments. At that time the medical department of the State library had not been established.

In 1891 with the beginning of its twelfth volume, the ANNALS became a journal of the Alumni Association of the Albany Medical College, and as such it has continued till now. This wider field of interests, toward which it had from the outset trended, was a natural outcome, and gave it a better reason for being. Its local relations have, however, always been conserved, for it has continued to be the mouthpiece of the County Medical Society. Dr. Willis G. Macdonald, now professor of abdominal and clinical surgery in the college, assumed its editorship for a year, when Dr. Howard Van Rensselaer, professor of materia medica, took charge of it and continued as its editor until 1897.

The journal then passed into its present form; it took on a new dress, it was enlarged, its contents were wider in scope so as to place it among the leading medical periodicals, and, in keeping with its scholastic source, the Greek motto appeared on the front cover page. In make up and matter it is a joy to all the wide circle who have its interests and what it stands for at heart. Drs. Andrew Macfarlane and J. Montgomery Mosher, and later Dr. Mosher associated with Dr. George Blumer, have set it into and carried it along its new ways. As we lay side by side one of the first issue of the ALBANY MEDICAL ANNALS and one of the last, those of us who brought it into being can at least find the pleasing consolation of the wise saw, "The Child is the Father of the Man."

Legitimately, and comprising its most interesting chapter, this biography should include a sketch of the matter that went into its making, of the men who supplied it, and of the incidents that lay along its way concerning the institutions of which it was the chronicle. It is such material, woven into most biographies which interest people, that make them really worth while. This however is really beyond our commission and we content ourselves with this immediate outline of the genesis and life of the ANNALS, its nativity, growth and accomplishment.

Twenty-five years measured from some points of view is not a long period. But since the subject of this *festchrift* came to birth street cars have climbed our State street hill unaided save by the trolley pole, the city has been lighted by electricity, X-rays discovered, radium found out, liquid air has been manufactured, de Lesseps began to dig the Panama canal, surgery has been re-invented and threatens to arrogate all there is of medicine, most of our knowledge of disease germs has come to hand, preventive medicine has become a new science.

Some of this historic procession has found reflection in this periodical of ours. Albany keeps in touch with all the world, is finding out and contributing its share to new invention. Long life to the ALBANY MEDICAL ANNALS, its faithful recorder as well as purveyor from its outside clientelle and the whole world at large. May it never be less worthy than it is now of all we can claim for it as our journal and that of the Albany Medical College Alumni Association.

FOUR CASES OF GANGRENE.

By ALBERT VANDER VEER, M. D.,
Dean of the Faculty and Professor of Surgery, Albany Medical College,
AND
EDGAR A. VANDER VEER, M. D.,
Instructor in Surgery, Albany Medical College.

ONE CASE OF EMBOLISM OF THE ANTERIOR AND POSTERIOR TIBIAL ARTERIES DURING AN ILLNESS OF TYPHOID FEVER; GANGRENE; AMPUTATION THROUGH THE MIDDLE THIRD OF LEFT LEG. —TWO CASES OF EMBOLISM OF THE BRACHIAL ARTERY; AMPUTATION OF THE ARM.—ONE CASE OF ARTERIO-VENOUS ANEURISM, FOLLOWING GUN-SHOT WOUND OF THE POPLITEAL VESSELS; AMPUTATION OF THE THIGH, THIRTEEN YEARS AFTER RECEIPT OF THE INJURY.

Embolism of Anterior and Posterior Tibial Arteries, in an Attack of Typhoid Fever

CASE I. Mr. J. N. S., aet. twenty-one years; single; clerk by occupation; habits excellent; July 18, 1873, during the third week of typhoid fever, was suddenly seized with a severe pain in the top of his left foot, which required large doses of morphine to relieve. Pain afterwards extended to the inner side and sole of the foot; within twenty-four hours the parts became cold and no pulsation could be felt in the anterior and posterior tibials. His heart's action was rapid, the condition of the radial pulse feeble, an anxious expression of the face, and a general state of profound shock, lasting for a period of thirty-six hours, the temperature dropping from 103° to sub-normal. Under stimulation and heart tonics an improvement took place; his stomach responded promptly to the taking of brandy, and, although the discoloration of the foot was now distinct, yet he was relieved of his great suffering, and a gradual improvement continued. At the end of ten days the line of demarcation was well observed and amputation necessary. In view of his age, and the fact that the popliteal artery was apparently intact, it was thought wise to do an operation through the middle third of the leg. At the point of amputation, however, no blood vessels could be recognized, and scarcely a ligature was used. The stump did fairly well, yet an irritation developed, and at times an open ulcer would present over the end of the tibia, giving the patient more or less distress. He went on to complete convalescence, regaining his strength quite rapidly and put on an unusual amount of flesh. In wearing an artificial limb the irritable stump gave him a good deal of discomfort, and a second operation was done February 6, 1880. A portion of the bone was removed and a very good recovery followed. Since then he has been able to wear his artificial limb with a great degree of comfort.

At the time this case occurred not very many similar cases of arterial embolism, associated with typhoid fever, had been reported. Scarcely any of the text-books referred to the subject. Since then, however, the literature has grown, and to-day most of our text-books on surgery have some reference to this complication. The case is somewhat interesting and unusual in reference to the age of the patient, as he gave so clear a history in the absence of any pathological condition of the system. There were no specific lesions, no marked hereditary tendencies, and he was not specially exhausted when seized with the attack of typhoid fever.

Recently there have been some very interesting cases of typhoid arteritis reported, among patients as early as nine years of age, in which they would apparently be near the point of convalescence, when a rise of temperature would present, with symptoms that seemed to indicate a reinfection.

There would be present tingling of the fingers or toes, great tenderness, the surface of the parts would feel cold, and in some instances become quite discolored; however, the arteritis would yield to treatment, the pulse return and the patient go on to recovery without loss of tissue.

Dr. A. Vander Veer has had in his practice one case of typhoid fever, that of a young lady, in which there must have been a thrombosis of the middle cerebral artery, during the very marked symptoms that appeared in the third week of the disease, followed by epilepsy, and after years of suffering, death.

This subject is one of great interest, particularly in the pathology and treatment of these cases.

Embolism of the Brachial Artery.

Case II. Miss G., aet. seventy years; housewife by occupation. Family and past history not obtained.

On November 23, 1897, patient was taken ill with pneumonia of the left lung. December 4, an embolism of the left brachial artery, accompanied with great pain, appeared, gangrene of the hand following, and gradually extending up the arm, until a line of demarcation showed about midway between the elbow and wrist.

December 10, Dr. A. Vander Veer saw the case in consultation with Dr. P. A. Hayes, her family physician. Amputation was advised and accepted. Arm was amputated just below the shoulder-joint. No ligatures were needed as the vessels were all occluded. The stump was slow in healing, there being much sloughing of the tissues. Eventually, however, a good stump was obtained. Patient remained in fairly good condition until May, 1902, when she fell and sustained a fracture through the neck of the left femur, from which she has made a slow recovery. (See Plate I.)

Case III. Mrs. Jennie B., aet. thirty-three years; native of United States; housewife by occupation.

Family history negative.

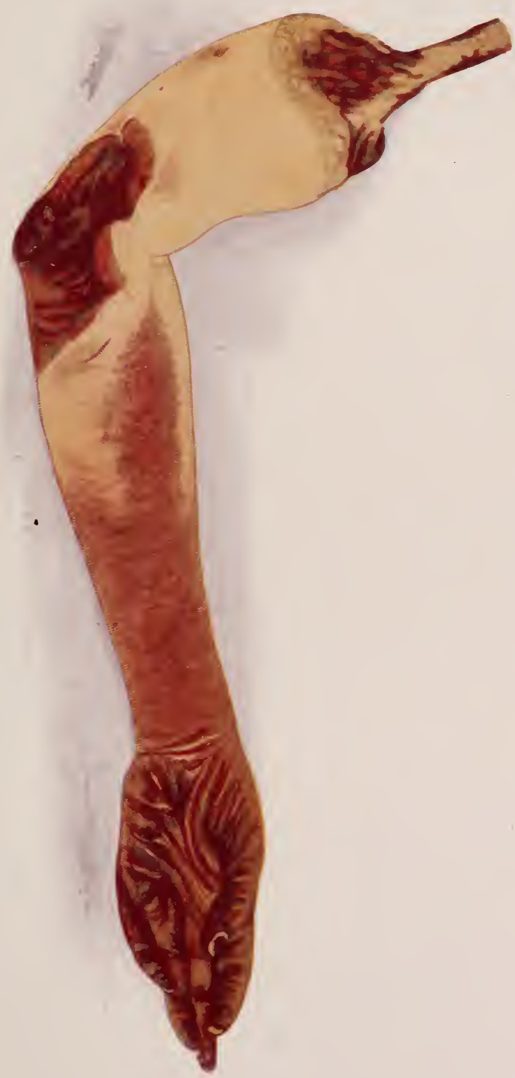
Past history:—Patient is the mother of two children, one ten and the other six years of age. Has had no miscarriages.

She gives the history, however, of impaired health for several years, with a tendency to the development of chronic pulmonary disease.

To Illustrate the Article by Drs. Albert and Edgar A. Vander Veer on "Four Cases of Gangrene."

Albany Medical Annals, January, 1908.

PLATE I



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Present illness:—On December 22, 1902, patient was seen by her family physician, Dr. A. Beach, of Coxsackie, N. Y. At that time she was five months' pregnant, and had a slight uterine hemorrhage.

The doctor prescribed for her and was not called again until January 17, 1903. At that time her tissues were oedematous, with scanty renal secretions, and the urine, upon applying the usual tests, one-half albumin. This latter condition increased in a few days to an almost solid precipitate.

January 26, labor pains came on and in a few hours she was delivered of a stillborn child. The placenta was a marked example of fatty degeneration, and, apparently, came away complete. For several days following delivery nothing unusual occurred, and there was every prospect of a speedy recovery.

February 2, one week after delivery, she had an attack of dyspnoea, so severe that it was necessary to set her up in order to breathe. Her temperature was several degrees above normal, pulse accelerated, and crepitation over a part of both lungs, but at no time positive evidence of solidification. The dyspnoea and other unpleasant symptoms yielded promptly to treatment.

February 5, the right arm became suddenly blanched; there was an absence of the radial pulse, and other symptoms of obstruction of the brachial artery, near the axilla. In a few days a line of demarcation formed between the elbow and the wrist, with sluggish circulation nearly up to the shoulder. As there was danger of septic absorption, with its attendant unfavorable symptoms, it was deemed advisable not to defer amputation.

February 11, Dr. Edgar A. Vander Veer was called to see the case in consultation with Dr. Beach. At that time the fingers were gangrenous and a line of demarcation could be made out just below the elbow-joint. The whole arm, however, was oedematous. The pulse was 110, of a fair quality; temperature 101.2°. The patient was weak and emaciated and not in the best possible condition for an operation. Amputation, however, was advised, and assisted by Doctors Beach, Van Slyke and James N. Vander Veer, amputation was done through the upper third of the arm.

Upon removing the Esmarch there was hardly any bleeding from the flaps, and the vessels, even at this high point, seemed thrombosed. The patient stood the operation well and came out from under the influence of the anaesthetic without any unfavorable symptoms. She began to improve speedily and March 24, there was almost complete union of the flaps. There is almost complete disappearance of the cough and other pulmonary symptoms. November 1, 1903, patient is in excellent health and doing her housework. (See Plate II.)

It is reasonable to believe that in these two cases there was a general infection of the system, in the one instance being due to the pneumococcus and in the other to the streptococcus. These organisms circulating in the blood caused thrombi to form on the mitral or aortic valves of the left ventrical; these clots, in turn, becoming loosened, formed emboli and entered into the circulation. In the first case the embolus reached the right axillary artery and formed an obstruction which completely shut off the supply to the arm. In the other case the embolus reached the left axillary artery and acted in the same manner. That a thrombus was caused by feeble circulation of the part does not seem probable as the patients were in excellent health previous to the illness. Also there was no indication of any inflammation of the walls of the arteries themselves.

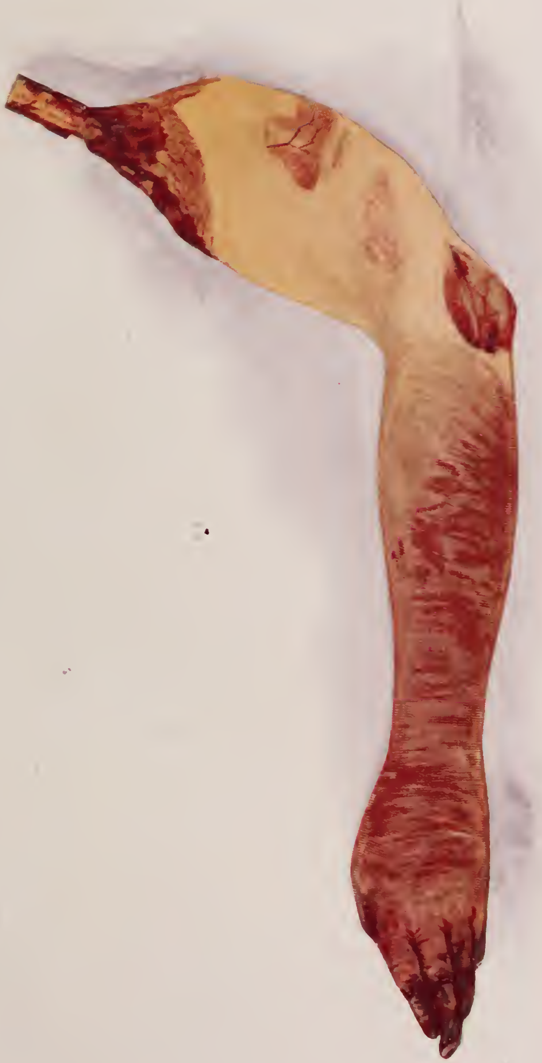
Gunshot Wound in Popliteal Space, Followed by Arterio-Venous Aneurism

Case IV. Mr. J. P., aet. seventeen years, on the morning of July 4, 1880, while walking through the yard in the rear of his father's residence, heard the report of a pistol, and soon after realized that he had been shot. Dr. A. Vander Veer was called to see the case a couple of hours afterwards, by his family physician, Dr. Cook, and upon examination they found a wound indicating that a ball had entered the popliteal space of the right leg. There had been quite free bleeding, which was now under control, but considerable of a haematoma presented. Pulsation in the posterior tibia was very weak, and while a probe was not used to any extent, yet they could not locate the bullet. It was thought best to elevate the foot, apply aseptic dressings and keep the patient absolutely quiet. The question of enlarging the opening, rolling out the clots, finding the injured vessel, and ligating it, was carefully considered, but it was thought at the time

To Illustrate the Article by Drs. Albert and Edgar A. Vander Veer on "Four Cases of Gangrene"

Albany Medical Annals, January, 1904.

PLATE 2



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that it was mostly an injury of the vein and that, unless hemorrhage presented, it would not be wise to interfere with the artery itself, the patient being kept under close observation in the meantime. No untoward symptoms presented. The case progressed favorably, the wound healed without suppuration, and no further attempt was made to find the ball. The patient was seen about six months after the injury when there was every indication of an arterio-venous aneurism presenting. The case was now laid before his parents, yet it was their feeling and expression that they did not wish to have an operation done. In talking the case over with Dr. Cook it was thought wise to keep the patient under observation and watch for such complications as might present. Mr. P. moved away from the city and was gone for a long time, but later returned and presented an unusual history of venous trunks being very much enlarged, and an aneurismal dilatation extending up towards Scarpa's triangle. Ulcers began to form about the leg and it was feared he might have serious hemorrhage if not relieved. The case was presented to him plainly and he readily consented to the operation, with the understanding that if it were possible to ligate the venous trunks, also repair the arterial supply, and save the limb this procedure would be carried out. Upon making an incision, February 21, 1901, the bleeding was very great and it was found impossible to accomplish anything short of an amputation through the thigh.

With our present knowledge of the repair of arteries, in a case like this, it would undoubtedly be the better surgery to cut down, expose the bleeding vessels, and if the artery were torn in such a manner as to prevent stitching, then make a clean resection, doing an end-to-end anastomosis, also taking somewhat similar care of the vein. We all know how serious is the ligation of the popliteal artery, as regards the blood supply to the leg, and that, in the past, a number of cases of gangrene and mortification have been reported, due to operations upon this vessel.

At the time of the operation the ball was found deep down in the popliteal space, towards the lower end of the femur, encysted, and not in the aneurismal sac.

The illustration does not give a complete presentation of the enormous venous trunks that were found at the time of the operation. (See Plates III and IV.)

When we read over the literature in regard to gangrene of the extremities, one is struck by the small amount written upon the subject. In fact, the only text-book that makes any reference ot the subject, so far as we could obtain, was the *International Text-Book on Surgery.* In this the opinion is expressed that the embolus comes from the left side of the heart, is swept into the blood current, and, in cases of gangrene of the upper extremities, generally blocks the artery immediately below the axilla. Stengel, in his *Text-Book on Pathology*, expresses the opinion that emboli in the arterial circulation, following septic conditions, are formed in the blood by a peculiar fibrin ferment of the germs themselves. The circulation in the whole body, particularly in the heart, becomes sluggish, this ferment causes the blood to coagulate on the walls of the heart, and thus the thrombus, and eventually the embolus, is formed.

In the second case, that of a patient seventy years of age, the embolus might possibly have been caused by poor circulation, the patient having reached that time in life when the arteries are more or less atheromatous and the circulation sluggish; however, the fact of her having lived so long after the operation, and having made such a good recovery, would mitigate against this idea.

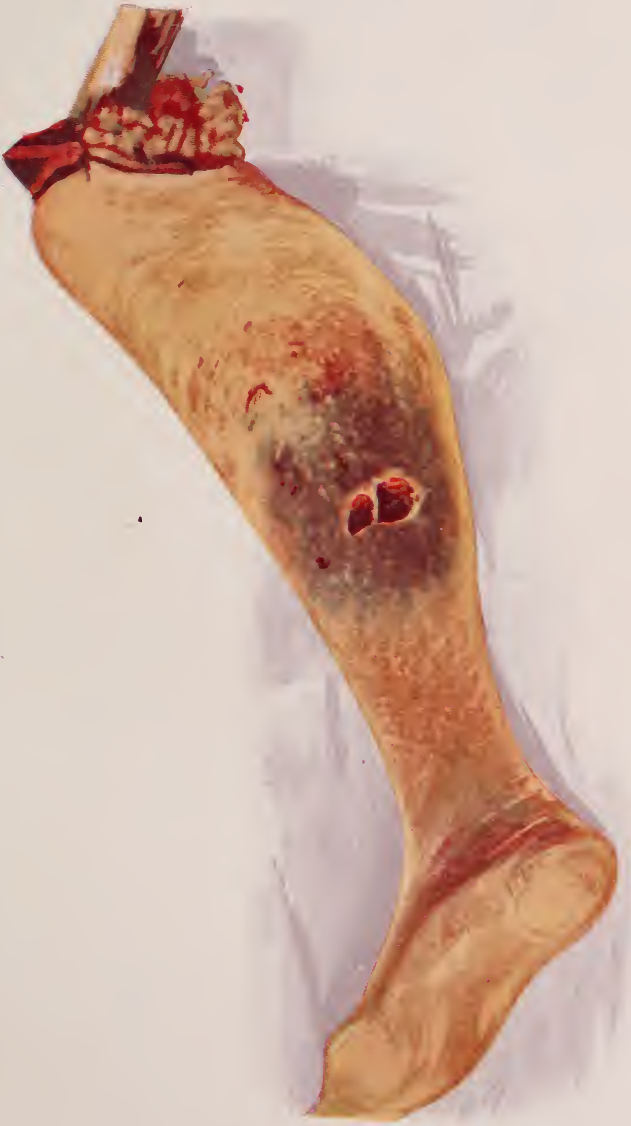
In the third case there might possibly have been an acute endocarditis, due to the general septic condition of the patient, this endocarditis causing an exudate on the walls of the heart which was swept off and caught in the brachial artery.

Some authors speak of secondary shock, that is vaso-motor disturbance. This condition has been recognized since the history of surgery has been recorded, but unquestionably it is many times confounded with concealed hemorrhage or infection. This secondary shock is developed up to an interval of several hours to one or two days after the operation, and is dependent upon the formation of blood clots, which may cause death by directly embarrassing that organ, or, more remotely, by fragments becoming detached and plugging the arteries in the different parts of the body. In both of these cases reported, however, the period of the onset of the disease was so remote that this conjecture can be set aside.

To Illustrate the Article by Drs. Albert and Edgar A. Vander Veer on "Four Cases of Gangrene"

Albany Medical Annals, January, 1904.

Plate I.



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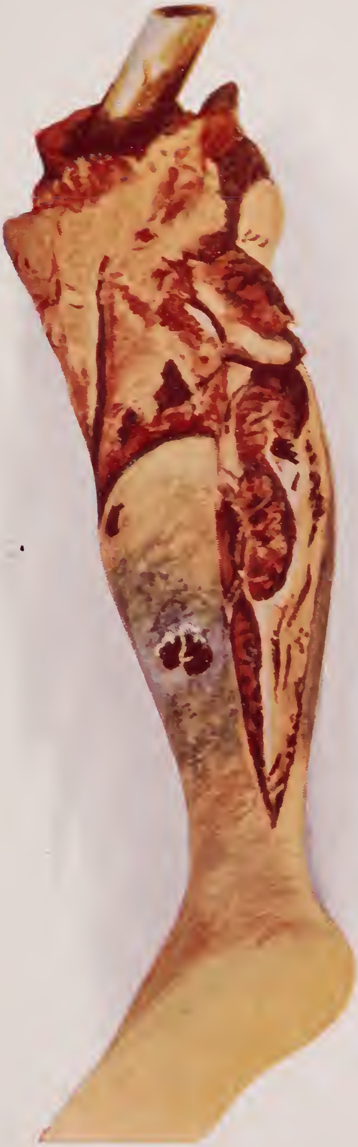

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When one thinks of the sudden deaths following operations, it is generally found that the thrombus has formed in the venous circulation, and caused death by stoppage of the heart, or of the lung, the arterial circulation seldom being affected.

Keen, in his *Text-Book of Surgical Complications and Sequels of Typhoid Fever*, says, that gangrene of the extremities, in typhoid fever, is due to obstruction of the circulation. The three factors causing gangrene are altered blood, weakened heart, and the mechanical difficulties of the circulation in distant parts, especially the last two, still hold good, but there must be added to them the important rôle of the typhoid bacillus in assisting, and often, it may be, in directly precipitating, the coagulation of the blood, which is the cause of the obstruction. Four varieties of obstruction may therefore exist and sometimes co-exist: First, arterial emboli of cardiac origin; secondly, autochthonous thrombi in the arteries; thirdly, autochthonous thrombi in the veins; and, fourthly, probably, though he thinks there have been no cases absolutely demonstrated pathologically, thrombi in the small peripheral vessels.

Arterial emboli of cardiac origin have been observed not only at postmortems, but clinically. Thus, Hayem observed the alteration of the heart two days before gangrene of both legs commenced, the first symptom being acute pain in the legs, with a sensation of cold. Pulsation disappeared first in the dorsalis pedis, then in the popliteal, then in the femoral. Amputation showed that, although the arterial walls appeared to be healthy, the femoral artery was partly obstructed by clot.

Cases one, two and three are particularly of interest, in reference to the suddenness of the attack, the very decided arrest of the circulation, and eventually terminating in gangrene of the parts. Another interesting point to be observed is the very complete obliteration of the blood vessels, scarcely a ligature being required, and no secondary hemorrhage occurring later on.

LIPOMA OF THE INTESTINE.

By SAMUEL B. WARD, M. D.,

Professor of Theory and Practice of Medicine and of Hygiene, Albany Medical College

On January 24th, 1903, I was asked to see, in consultation with Dr. John V. E. Winnie, of Sidney, N. Y., a case presenting one feature which is certainly very rare and to me was entirely novel. On January 20th, the patient had passed from his intestine a soft, solid mass—not at all fecal in nature—which just filled an ordinary one ounce, wide-mouthed, quinine bottle. It was approximately egg-shaped, and measured four and a half inches in length, with a diameter of something over an inch and a half. Dr. George Blumer, Director of the Bender Laboratory, was good enough to harden the specimen and examine it carefully. He reported that it consisted entirely of fat in a connective-tissue framework; no muscle, and no glandular structure of any kind. The surface was eroded at a few points as if it had been slightly acted upon by digestive fluids.

Three possibilities suggest themselves. It might have been swallowed; it might have ulcerated its way into the intestines from the outside; it might have grown in the intestine from its wall.

As to the first suggestion, of his having swallowed the mass, it would seem almost impossible that any man should swallow a mass of this size. In the second place the patient himself, who is not at all neurotic or hysterical, denies any such possibility. In the third place he had been absolutely confined to his bed for the preceding two months and everything that he had eaten had been brought to his bed-side by his wife or nurse. Those who were about him all deny most positively the possibility of his having been able to get possession of any such mass to swallow even if he had desired, and been able, to do so.

As to the second possibility, that this mass grew somewhere outside of the intestine, ulcerated its way into the tube, and was passed from the rectum with his stool, this seems also very improbable. It is well established that portions of the pancreas have ulcerated their way into the intestinal tube and been subsequently found in the stools, and it was suggested that this mass might have had a similar origin. Fatty masses of this size may occur in the fatty capsule of the kidney, and perhaps in the omentum in obese subjects. But this patient was exceedingly emaciated, and it is difficult to conceive that so large a mass could possibly have existed in either of the above mentioned localities. It is conceivable that a glandular organ, like the pancreas, with its irritating secretion, might ulcerate its way into the intestinal tube; but it is hard to see how a mass of simple, normal fat could possibly do so. And lastly, so far as I have been able to ascertain, the literature of medicine contains no history of a case in which this has occurred.

The last conjecture, that this was a lipoma growing from the inner surface of the intestine, seemed the most probable, and the effort to find similar cases on record was crowned with success. Dr. Blumer's report of the microscopical structure of the mass accorded entirely with the supposition. In conversation with my friend, Dr. W. G. Macdonald, of Albany, N. Y., I found that on May 22nd, 1903, at the Albany Hospital, he had operated on a case of intestinal obstruction. He found an invagination of the intestine, removed several inches, made an end-to-end anastomosis with the Murphy button, and the patient made an uninterrupted recovery. Examination of the removed portion of the intestine showed at the head of the invaginated coil an intra-intestinal tumor, which under the miscroscope proved to be a lipoma. Many cases have been found in current literature, reference to which is also appended, and for collecting which I am indebted to my assistant, Dr. James F. Rooney.

The following is the history of my case:

W. P. R., American, age thirty-seven, store-keeper, married, residing at Sidney, N. Y. Was first seen by me, in consultation with his family physician, Dr. J. V. E. Winnie, on January 24, 1903.

He complained of severe abdominal pain, great tenderness, and had had several attacks of what had appeared to be biliary colic.

Family history: Father has had frequent attacks of "liver trouble" and mother much the same. Mother's aunt and cousin had died of phthisis pulmonalis. Father had one attack of acute articular rheumatism, and various members of the family had had muscular rheumatism.

Personal history: Up to eighteen years of age, whenever he wore tight shoes, or got cold and hungry, he would fall over unconscious for a few seconds; but if laid on his back recovered almost instantly. Has had no such attack since he was eighteen.

In the summer of 1896, having suffered for five years with stomach and bowel trouble, Dr. W. succeeded in relieving him of some forty feet of tape-worm. He was very ill with measles at about twenty; had had scarlet fever at ten; and had had two felons.

Present illness: On November 14th, 1902, he was obliged to quit work and go to bed, where he has remained ever since. For some months previous he had not felt well and for ten days had had pain, often quite severe, at the pit of the stomach. This pain continued, was mostly on the right side but ran across to the left, is subject to exacerbations and remissions but has never ceased entirely. Has very little nausea, but has vomited about once in two weeks. He was somewhat jaundiced during the first two weeks of confinement to bed, but not since. No headache; somewhat constipated; little pain in the back. Sometimes eating relieves the pain; at times pressure over the abdomen does the same. At first he slept very badly and waked at the least noise. Since November 21st he has had to have hypodermics of morphia, every five to thirty hours, for the relief of pain, and has slept better. After eight days of illness he had the usual symptoms of biliary colic, lasting all night, and these have been repeated about every two weeks ever since. The vomited matter was green as were also the stools. During the past week the movements have been carefully examined and some sandy substance and foreign matters found, which were taken home for further examination. On January 20, four days ago, with a bowel-movement containing mucus and about half an ounce of blood, and accompanied with considerable pain, came a mass some four or five inches long, not at all fecal in character, since which time there has been much less mucus. There has been no pus in his stools at any time. His temperature, taken many times during his illness, has never been above normal. His pulse on one occasion, about November 15th, was 100; at no other time over eighty-four; and has averaged seventy to seventy-six. Respirations have been normal.

Present condition: Patient considerably emaciated; skin and mucous membranes pale, but not jaundiced; mind perfectly clear and bright. Is lying on his right side in bed, and that is his almost constant position, though he can turn on his back for a few minutes for the purpose of examination.

Heart and lungs negative.

Liver and spleen not enlarged. Rest of abdomen negative except that there was some tenderness and muscular rigidity over the region of the gall-bladder.

The mass passed on January 20th was brought home and also the gritty material found in the stools. As already stated, Dr. Blumer, of the Bender Laboratory, found the mass to consist of nothing but fat in a connective-tissue frame-work. The foreign matter consisted of the cortex of orange seeds, small pieces of bone and one perfect vertebra of a small bird. Subsequent inquiry showed that he had eaten oranges, and had pigeon broth, several times before these stools were passed.

February 25, 1903: I saw the patient again to-day and found him greatly improved. He has had no pain in region of gall-bladder since last visit and this morning he walked to the window to look out. Tongue clean and nothing that he eats distresses him. Physical examination gives the same results as before except that the gall-bladder is to-day distended so as to reach down within half an inch of the level of the umbilicus and within the same distance of the median line. It is not tender.

Blood-count, made to-day, shows reds 4,620,000; whites, 5,800, hæmoglobin fifty per cent.; coagulation time greatly increased; reds showed lessened resistance and crenated rapidly; color-index, .54.

Urinary examination. Sp. gr. 1012, acid; no albumin; phosphates increased; indican greatly increased; no casts; no blood.

On March 14, Dr. Winnie wrote me that the fulness in the region of the liver had disappeared almost entirely; bile flows freely; temperature and pulse normal; goes out to meals two or three times daily. Still has pain, accompanied by considerable gas, mostly in the region of the pit of the stomach and relieved by a hypodermic of water. Has hiccough when in pain. Moving about does not increase the pain. Bowels regular. Sleeps well with eight grains of trional.

On August 12, 1903, Dr. Winnie writes that the patient is perfectly well; has no pain; takes no drugs; eats and sleeps well; weighs 156 pounds; does lots of work. In other words his recovery appears to be complete.

Of course, it can scarcely be said to be certain that the attacks of paroxysmal pain, which resembled biliary colic, were really entirely due to the presence of this intestinal tumor. Yet the history of this case in many respects closely resembles that reported by Lewtas, and reproduced in abstract below, in which such appeared to be the case.

I am indebted to my friend, Dr. Macdonald, for permission to report his two cases in which the presence of intestinal lipoma was made certain by operation. The histories follow:

Mrs. Dinger, aged fifty, born in Germany, washerwoman by occupation. The patient complains of constant pain in the abdomen.

Family history: Father died at forty-seven of (kidney disease?) dropsy. Patient has two brothers and four sisters.

Past history: Always well except for severe headache. Worked hard from girlhood. Menstruation did not commence until after the twentieth year but has always been regular since. Three years ago reached the change of life. One miscarriage at the third month after a fall. Bowels always constipated. Urination normal although the patient has to arise at least once nightly.

Present illness: During the month of last November, 1901, was taken with violent pain in the abdomen which came on in the night. Toward morning the pain moderated and the patient was able to go to work and do her day's washing. Although she suffered from the pain almost constantly she kept at work until Christmas time (1902) when pain became so severe that she called a physician. Since that time the patient has been incapacitated and has sought relief from pain by assuming many different postures without effect. She was, however, more comfortable at night so that she was enabled to sleep. She has been on a milk diet since Christmas time; has steadily lost weight and for the last two weeks constipation has been more marked.

Operation was done on May 22, 1903, by Dr. Macdonald.

Incision in linea alba ten to twelve centimetres long between symphysis pubis and umbilicus. A sausage-shaped tumor was found composed of an invagination at the head of the entering coil of which was found an intra-intestinal tumor. Intestines packed back with gauze and entire intussuscepted gut removed, about eighteen inches in length. End-to-end anastomosis with the Murphy button. Intestines replaced. Incision closed with silkworm-gut sutures. Iodoform dressing.

Uninterrupted recovery. Discharged from hospital June 27, 1903.

Pathological diagnosis: Lipoma (of the jejunum). The tumor was pear-shaped, about two inches and a half in length and one inch and a quarter in greatest diameter.

Dr. Macdonald's second case:

Miss J. E. D., twenty-nine years of age, single, school-teacher by occupation. Family history entirely negative. Previous personal history negative except for an attack of nervous prostration. Present illness began about a year before coming under the observation of the author, with attacks of abdominal pain, colicky in character, paroxysmal, and repeated at irregular intervals. These attacks had been treated as attacks of acute appendicitis by previous attendants. During these attacks she was very constipated.

Physical examination of the heart and lungs was negative. In the abdomen, however, there was found a tumor in the right iliac fossa, of about the size of an orange, and apparently connected with the caecum. The growth was entirely movable, not tender and palpation was associated with gurgling. The patient was not emaciated, nor did she present any evidences of cachexia. Diagnosis: Tumor of the caecum probably sarcomatous or tuberculous in character. Operation, August, 1900. An incision of ten centimetres was made in the right linea semilunaris. After opening the peritoneum there was found a tumor of the caecum close to the ileo-caecal valve, which was closely incorporated with the coats of the bowel. Upon incision of the gut it was found that the tumor was sessile, rising from the submucosa and projecting mainly into the lumen of the gut. It was excised, but during its careful excision, the mucosa was torn through in one or two places, which were immediately sutured according to Czerny's method, and the wound in the muscular and peritoneal coats sutured by Lembert's method. The abdominal wound was closed without drainage. The tumor was a lipoma measuring eight by five by three centimetres. Recovery was complete and uneventful.

LITERATURE OF INTESTINAL LIPOMA

Nothnagel states that lipomata are most apt to follow chronic catarrhal states, and that their most frequent origin is from the submucosa. He also says that they are most frequently found in the rectum, less frequently in the lower ileum and least of all in the remaining portions of the intestinal canal. This does not hold good in the series of cases abstracted herewith.

Castelain reports a case occurring in a man of forty-five, who had previously been in good health save for constipation and rather poor digestion. In November, 1869, was taken with anorexia, vomiting, obstipation, abdominal tenderness, lumbar pain and rectal tenesmus. Some relief was had by purgation. On the 14th of December after a light meal was called to stool and after several efforts expelled a pedunculated lipoma measuring twelve by six centimetres. Recovery.

Afezou reports the case of an old woman of eighty-two who had had for a year constant indigestion, colicky attacks and constipation. The latter was so severe that she seldom had a movement unless by enema. Shortly after a rectal examination disclosed a tumor, a large lipoma was passed per anum unaccompanied by fæces. Complete recovery.

Fuchsig reports a case occurring in a man of forty-seven who had previously been well, with no history of intestinal trouble. About a year before he came under observation he commenced to have colicky pains in the right lower abdominal region. The attacks at first lasted for a short time only. Until this time the stools were regular. On the second of January, 1900, the abdominal pain became much more severe and very sharp. Abdominal tenderness and rigidity appeared and the urine contained much indican. Diagnosis: Invaginatio intestini ilei chronica. Operation performed Jan. 8, 1900. At the operation it was found that a tumor the size of a walnut had caused the invagination which began about fifty centimetres above the ileo-cecal valve. It proved upon examination to be a simple lipoma. Recovery.

Gross reports the case of a man of forty-seven, who had always been healthy. In April, 1898, he sustained a traumatic rupture of both sides and was operated upon after Bassini's method. From this he made an uneventful recovery. Fourteen days before entrance into the hospital he was taken with pain in the lower half of the belly which was cramplike in character. In one of these attacks the patient, while making pressure upon his side to relieve the pain in his abdomen, became aware that there was a growth present. Constipation was marked and vomiting had occurred once before entrance into the hospital. His appetite was almost entirely lost and for two days he had had no stool. Operation on the twenty-ninth of November, 1899. At operation a lipomatous tumor was found in the left half of the transverse colon; excision; recovery.

Hahn reports the case of a man of forty-three who had always enjoyed good health up to the last six or nine months. Since that time he had long-lasting attacks of obstinate constipation together with loss of appetite. Three weeks previous to entrance into the hospital he was taken with a severe attack of intestinal catarrh from which he was confined to bed for fourteen days. No stool within the last six days; colicky pains and frequent vomiting. After a few days a diagnosis of invagination was made and operation performed four days after entrance into the hospital, on the fifteenth of September, 1898. At operation an invagination of the small intestine was found, caused by two lipomatous growths, one subperitoneal and the other submucous. Resection of fifteen centimetres of gut; recovery.

Lewtas places on record a case occurring in an officer of forty-five who was seized, about four A. M. of the fourth of June, 1887, with agonizing pain referred to the right side of the abdomen. An injection of morphine gave relief. But in the course of the following night the pain returned with greater intensity, so much so that recourse was had to chloroform inhalation. The case seemed obviously to be one of gall-stone colic and directions were given to wash the feces through muslin. On the sixth of June the patient passed what was thought to be a "piece of flesh" but which was a lipoma (in the original communication given "lymphoma") of nearly square outline measuring about 1½x1½x¼ inches.

Bland Sutton reports the case of a forty-four year old man who had suffered for seven years with abdominal trouble in the right side. In November, 1899, symptoms of intestinal obstruction occurred. In June, 1900, operation was done. At operation it was found that the cause of the trouble was a submucous sessile lipoma, situate two inches above the ileocecal valve, which was excised. The tumor weighed two ounces. Recovery.

The case of Clos was that of a forty-five year old woman, in whom there was found at autopsy an invagination of the lower portion of the sigmoid into the rectum. At the head of the invaginated coil there was found a lipoma the size of an orange, which was freely movable and occupied relative to the rectum the position of the clapper to a bell. The woman had died of intestinal obstruction despite the formation of an artificial anus.

Bauer's case was that of a man who had had a few years previously, a running of pus from the urethra together with "exulcerationem renum" from which he was happily relieved. After a little time he was taken with pain in his joints from which he suffered many weeks. Previous to being seen by Bauer he had for more than a year suffered with severe pain in the head. During all this time his stools were constantly hard and stony, sometimes for many days obstructed. Bauer first saw the patient after he had for many days been without any stool, vomiting often, and suffering from severe abdominal pain, which was paroxysmal and colicky. It was impossible to relieve the obstipation by clysters. On the tenth day after his first visit, there was found in the stool a so-called "mola intestinorum" which was composed of a fatty and membranaceous substance. On the eleventh day there were found in the stools many more smaller bodies with much blood. The pulse remained quite rapid; face was much swollen; urine very cloudy and turbid, much articular pain. About the twenty-first day the patient began to have a dejection daily although abdominal pain was still present. Complete recovery on the forty-seventh day save for difficulty in mounting the stairs (perhaps from the articular pain). The author thinks that the tumors arose from the large intestine because of the situation of the pain about the umbilicus and because of their expulsion after enemata. (The description of the tumors more closely resembles that of the adenomata than that of the lipomata. Their multiplicity is also against their being lipomata. There may have been, however, a single large lipoma—composed of fatty and membranaceous tissue—together with multiple small adenomata, or, perhaps, fragments of a gangrenous sloughing, invagination.

Langemak reports two cases of submucosal lipomata. In one case the situation of the tumor was close to the ileo-cecal valve where it had caused a chronic ileo-cecal invagination. Resection. Recovery. In the second case the lipoma was found in a loop of the small intestine of a patient who was undergoing an operation for the formation of a jejunal fistula because of a cancer of the stomach. The tumor was extirpated.

Meckel reports three cases; one in which the lipoma was situated at the inferior extremity of the esophagus, another in the duodenum, and in a third in the colon.

Virchow reports one case of polypoid lipoma of the jejunum, about five centimetres long and two centimetres broad, another of a lipoma in the neighborhood of the pylorus, in the stomach, and also mentions an observation by Sangalli, of a case in which there were present in the transverse colon two submucous lipomata, one of which was as large as a hen's egg and pedunculated, by which invagination and, in the end, prolapse was caused.

Morel's case was that of a forty-six year old woman, who had suffered for over three years with a bearing-down pain in the pubic region, which appeared each morning after breakfast, and lasted for quite some minutes. For the last year this pain had been growing worse, and had begun to appear even after dinner. Vaginal examination was without result in elucidating the condition. After an enema, while at stool, the woman felt a large body pass out through her anus. It proved to be a lipoma. An accurate description of the tumor is wanting. Morel thinks that the small intestine was probably the site of the tumor because of the location of the pain. He thinks the case is particularly interesting because of the size of the tumor.

Albrecht reports the case of a man of fifty-one years, who, until his twenty-first year was poorly developed and weakly. After his twenty-second year he developed very rapidly and became very corpulent. Seven years before coming under observation, he was seized with a severe pain in the right hypochondrium, immediately after leaping down from quite a height. This disappeared after a week. He had had for fifteen years a lipoma on the inner surface of the right thigh. Since a short time he has had pain in the upper portion of the belly, after drinking as well as after eating. This pain increased very much after a long carriage ride; a diarrhœa appeared accompanied by tenesmus, the stools being slimy and defecation occurred about four times daily. The diarrhœa constantly increased—ten to fifteen stools in the day —with masses of mucus and blood. No fever was present although the man became very weak and had entirely lost appetite. After a day of extremely severe pain a pear-shaped lipoma was passed *per anum* after which the patient entirely recovered. The growth was pedunculated, eleven by six centimetres. Part of the growth was necrotic.

Tuffier found in a forty-three-year-old woman, who had had for two years hemorrhoids, and who had lately been very much constipated, a lipoma of the rectum. The rectal examination was very painful; under anæthesia he unexpectedly found within eight millimeters from the anus, a cylindrical tumor which could be easily circumscribed by the finger, which he found was pedunculated, and at the head of a coil of invaginated intestine. Because of the unrelievable obstruction an artificial anus was formed. The patient died of a purulent peritonitis. At the autopsy there was found an invagination of the sigmoid into the rectum. In the lower portion of the rectum there was found a lipoma as large as an orange and of the shape of a pear, and its apex fitted into the lower portion of the sigmoid flexure.

Tedenat reports two cases. The first was that of a woman of sixty-four years, who had had since she was fifty-eight digestive disturbances and constipation. For five years she had also felt a certain distressing heaviness in the rectum, and shortly after this noticed that at times she passed bloody mucus in the stools. At the rectal examination there was found a round tumor which could scarcely be reached by the finger. The tumor was excised and found to be a lipoma, thirteen by six centimetres, and had a pedicle three or four centimetres long which had the thickness of the forefinger.

Link describes the case of a man of forty-five, who had never previously been seriously ill. For five years he had suffered from very severe intestinal obstruction, and for three years had at intervals severe hemorrhages, as a source of which several hemorrhoids were discovered. After their removal he remained well for about a year. For two years he had again suffered from constipation and tenesmus. Palpation of the abdomen revealed a tumor the size of a man's fist in the left lower region of the abdomen. After a copious hemorrhage it was found that a tumor was protruding from the anus. The tumor was attached to the gut by a thickened pedicle. The growth was excised. The origin of the growth is given as the mucosa but was in all probability from the submucosa.

The case of Larrier and Roux was that of a woman dead of pneumonia and who had had lues, in whom at the autopsy they found a lipoma of the duodenum in its lower portion, which was pear-shaped, six by three centimetres, and had a thin pedicle. There was enormous dilatation of the stomach, although the duodenum was not entirely occluded by the tumor.

The other case of Tedenat and that of Vaernewyck were retrorectal in origin and should not be classed with the pure lipomata of the intestine although it is well to mention them.

The case of a man of forty-four is described by Vaernewyck. This patient had for eight years pain in the region of the stomach and severe obstinate tympanites. He had for eight days, also, while taking some cure for tapeworm, suffered from bloody stools, which were probably caused by hemorrhoids. Three years after this occurrence he found one day after stool a large mass protruding from the anus, which he replaced. From this time the patient constantly suffered from dragging pain in the abdomen, nausea and uneasiness, which often was relieved only after vomiting. The retained feces were only expelled by enema, and were often accompanied by masses of mucus. After a copious hemorrhage from the gut the tumor was extirpated, and, as the microscopical examination showed, was a lipoma having its origin in the peri-rectal fat. The second case of retrorectal lipoma presenting through the rectum, is that of Tedenat, who describes a case occurring in a man of sixty-eight, who had for four years painful defecation and ever increasing constipation. At autopsy there was found a tumor about five or six centimetres above the anus on the posterior rectal wall. This proved to be lipoma arising from the retrorectal region, encapsulated, and pushing forward into the lumen of the gut.

Kozielski places on record two cases, both of which came to autopsy from other causes than the intestinal lipoma.

The first case was that of a sixty-eight years old laborer who had died of carcinoma of the stomach with widely diffused metastases. At the section there was found in the duodenum a sessile plum-sized tumor, 4.5x3.8x2 centimetres, about twelve centimetres from the pylorus and in close proximity to the biliary papilla. It proved to be an encapsulated lipoma.

The second case was that of a woman of twenty-nine, who came to autopsy after death from rupture of the uterus. In the duodenum just above the biliary papilla there was found a completely encapsulated growth lying in the submucosa, and protruding upon the lumen of the gut. This was 1.5x1x1.5 centimetres, and proved to be a simple lipoma.

Hiller's case was that of a fifty-one year old man, who had always been well and who had never had any trouble with his intestinal canal. This man was taken on the twenty-third of August, 1898, with colicky pain which became more and more severe, which was after a short time followed by vomiting. On the second day the temperature was slightly elevated, and his belly tender and rigid. Rectal examination was negative. Diagnosis: Intestinal obstruction (High-seated). Laparotomy. At the operation there was found in the lower portion of the small intestine, a tumor which had caused invagination. About fifty centimetres of the gut was resected, forty centimetres of which were completely gangrenous. During the evisceration, although the greatest care was used, the gangrenous gut tore in one place and some of its contents were spilled into the peritoneal cavity. On the following day the patient died of peritonitis. The tumor was found to be a sub-mucosal lipoma.

Vois (quoted by Hiller)reports a case of lipoma presenting in the rectum at the head of an invaginated coil of gut. The tumor was of the size of a goose's egg, not tender, could be completely circumscribed by the finger, and possessed a pedicle. The tumor was delivered from the anus, the pedicle snipped through and the invagination reduced by water-pressure.

The case reported by Studsgaard, is that of a forty-two year old woman, who had an invagination of the jejunum which was caused by a polypoid lipoma. Laparotomy. Disinvagination was impossible so that the entire mass was resected. The invagination was fifty-two centimetres long; the length of the involved gut being 128 centimetres. Death, after five days from peritonitis.

Ninaus reports the case of a man of thirty-two years, who, for the last month had suffered from colicky pain in the cecal region. After a meal was taken with very severe pain in the belly, and distension. Purgation was without effect. On the following day vomiting occurred increasing in intensity, and finally becoming feculent. On the fifth day vomiting occurred thirty times and was in large quantity. On the eighth day blood appeared in the stool, as well as on the tenth when it was mixed with pus. From this time speedy improvement took place, although pain was still present in the cecal region and there were from five to seven evil-smelling stools daily. On the twenty-first day the patient passed per anum a section of small intestine 120 centimetres long which had on one side a submucous lipoma. The author attributes to the growth the cause of the intussusception. After a year another attack of severe colic with constipation, tenderness in the cecal region, increased resistance, which passed off after a little. The patient was after this never quite well.

Marchand's case was that of a powerful young man of twenty-three, who, the second night following the day on which he had sustained a severe fall upon the left lumbar region, was taken with vomiting and all the symptoms of ileus. The patient came into the clinic on the fifth day after the beginning of his illness. That same evening laparotomy was done. It was not possible to remove the obstruction, which was thought to be due to internal constriction (Einklemmung). A coil of the much distended intestine which was torn by the manipulations was resected and sutured to the abdominal wall. Death after two hours. At the autopsy there was found an invagination of the ileum into the much distended colon. At the apex of the invaginated coil there was found a sausage-shaped tumor as large as a man's fist which proved to be a subserous lipomatous tumor. The mesenteric fat was especially well-developed.

The journal in which Nolan's case was reported was not accessible, but from his title the tumor was in a child, and was extirpated from the transverse colon.

Bierring's article it was impossible to procure.

Boas (*Diseases of the Intestines,* American translation; N. Y., 1901), mentions a case of spontaneous expulsion of an intestinal lipoma reported by Paci.

The relative occurrence of the tumors in the different divisions of the intestinal canal, in the series of cases reported herewith was as follows: esophagus, one; stomach, one; duodenum, four (probably two others); jejunum, four; ileum, five (probably one other); small intestine (portion not specified) two; colon, five; sigmoid flexure, two; rectum, two; retrorectal, two; unknown, nine. From this we may see that the number found in the small intestine excluding the stomach and esophagus, was fifteen (probably eighteen), while the large intestine exclusive of the rectum contained but seven. The sex of those in whom a lipoma was found, was male in sixteen; female in ten; and unmentioned in eleven. Spontaneous expulsion of the tumor occurred in nine cases, in one with the attached invaginated sphacelus of the ileum, invagination in twelve; death followed operation for relief of the obstruction in five, while in one case death resulted from the pure obstruction. After excision of the tumors there were thirteen recoveries and no deaths, while in the five cases in which resection of a larger or smaller portion of the gut was necessary, two cases were fatal from peritonitis. Nine of the cases were incidentally found during the course of an autopsy.

The occurrence of the tumor by decades in those cases in which the age was given, was as follows: One to twenty, one; twenty-one to thirty, four; thirty-one to forty, one; forty-one to fifty, eleven; fifty-one to sixty, three; sixty-one to seventy, three; seventy-one to eighty, none; eighty-one to ninety, one.

The summary attached gives the cases in order of their chronological occurrence, together with succinct abstracts of the principal facts in each case.

AUTHOR	SEX	AGE	PREVIOUS HEALTH	PROMINENT SYMPTOMS	SITUATION	COMPLICATIONS AND SEQUELAE	RESULT
Bauer (2)	M		For a year, constipation	Obstipation, colicky pains, fever, rapid pulse, vomiting & weakness	Unknown		Spontaneous expulsion; slow recovery
Meckel					Esophagus		Found at autopsy
Meckel					Deodenum		" "
Meckel					Colon		" "
Virchow					Stomach		" "
Virchow					Jejunum		
Sangalli					Colon (transverse)	Invagination & prolapse	
Vaernewyck	M	44	Pain and obstinate tympanites (8 yrs.)	Hemorrhage and growth protruding from anus	Retrorectal		Excision; recovery
Castelain	M	43	Constipation, poor digestion	Obstipation, abdominal tenderness lumbar pain and tenesmus	Unknown		Spontaneous expulsion, recov'y
Ninaus	M	32	Colicky pains, for 1 month	Sudden pain; distention; vomiting; bloody stools	Small intestine (probably Ileum)	Invagination	Spontaneous expulsion of tumor with necrosed gut
Afezou	F	82	Indiges'n; col. at'ks; constipation (1 yr.)	Palpation of growth in rectum	Rectum		Spontaneous expulsion; recov'y
Morel	F	46	Pain (suprapubic) for three years	Pain more severe for past year	Unknown		Spontaneous expulsion; recov'y
Albrecht	M	51	Pain after eating or drinking	Sudden increase of pain; diarrhoea with tenesmus; bloody stools	Unknown		Spontaneous expulsion; recov'y
Vois				Symptoms of ileus	Unknown	Invagination	Excision of tumor; reduction of invagination; recovery
Pacl					Unknown		Spontaneous expulsion
Clos	F	45		Symptoms of ileus	Sigmoid	Invagination	Artificial anus; death
Studsgaard	F	42		Symptoms of ileus	Jejunum	Invagination	Resection of gut; peritonitis; d'th
Tuffier	F	43	Hemorrhoids; constipation	Palpation of rectal tumor	Sigmoid	Invagination	Colostomy; peritonitis; death
Tedenat	F	64	Digestive disturbance; constipation	Heavy feeling in rectum; bloody mucus; palpation of rectal tumor	Rectal (Polypoid)		Excision; recovery
Tedenat	M	68	Painful defecation; tenesmus for 4 yrs.		Retro-rectal		Death; autopsy
Lewias	M	45		Symptoms resembling biliary col.	Unknown (prob. duodenum)		Spontaneous expulsion
Link	M	45	Obstipation; hemorrhoidal hemorrhage	Palpation of tumor in left inguinal region	Unknown (probably the sigmoid)		Extrusion from anus; excision; recovery
Marchand	M	23	Injury to left lumbar region	Symptoms of ileus	Ileum	Invagination	Laparotomy; death
Larrier & Roux	F				Duodenum		Found at autopsy
Hiller	M	51	Always well	Colicky pain; vomiting; abdominal tenderness; rigidity	Ileum	Invagination	Resection of gut; peritonitis; death
Nolan					Transverse colon		Excision; recovery
Koszielsky	M	69		Carcinoma of stomach	Duodenum		Found at autopsy
Koszielsky	F	29		Rupture of uterus	Duodenum		" "
Hahn	M	43	Anorexia; constipation for past 6 mos.	No stool for six days; colicky pain and vomiting	Small intestine	Invagination	Resection of gut; recovery
Gross	M	47	Always well, save for bilateral rupture	Colicky pain; constipation; vomiting; palpation of abdom. tumor.	Transverse colon		Excision; recovery
Bland-Sutton	M	44	Abdominal trouble in right side; at one time symptoms of intestinal obstruction	Symptoms of intestinal obstruction	Ileum		Excision; recovery
Langemak					Ileum	Invagination	Resection of gut; recovery
Langemak				Carcinoma of stomach	Jejunum		Excision, recov. from operation
Fuchsig	M	47	Colicky pain for 1 year	Sharp pain; obstipation; abdominal tenderness and rigidity	Ileum	Invagination	Excision; reduction of invagination; recovery
Ward (McDonald, operator)	F	50	Attacks of abdominal pain for 6-8 mos.	Pain and constipation	Jejunum	Invagination	Resection of gut; recovery
Ward (McDonald, operator)	F	20	Good, save for past year, pain (colicky) and constipation	Repeated attacks simulating appendicitis	Caecum		Excision; recovery
Ward	M	37	Generally good, tape worm 7 yrs. before	Repeated at'ks resembl'g bil. colic	Unknown (prob. duodenum)		Spontaneous expulsion; recov'y

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MYASTHENIA GRAVIS.

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WITH A

Report of the Autopsy,

By GEORGE BLUMER, M. D.,
Of San Francisco,

TOGETHER WITH A

Report of the Microscopical Examination of the Tissues,

By GEORGE L. STREETER, M. D.,
Of the Johns Hopkins Medical School.

A quarter of a century ago, while the Albany Medical Annals was modestly commencing its struggle for existence, a group of nervous symptoms was being slowly differentiated and was commencing a struggle for recognition as a clinical entity and for a name which has finally culminated in

Myasthenia Gravis. This differentiation was first attempted by Erb[3] in 1879, although two years previously Wilks[2] had published a paper on "Cerebritis; Hysteria and Bulbar Paralysis, as Illustrative of the Function of the Cerebrospinal Centres; Bulbar Paralysis, Organic and Functional," in which he recorded a case of apparent bulbar paralysis without discoverable lesion in the medula, and, as a matter of curiosity, it may be noted, that Dr. Willis, in his book, "The London Practice of Physic," published in 1685, p. 431, gives a description of a disease which can hardly be other than myasthenia gravis (Guthrie[120]).

Erb's paper was entitled "Clinical Observations of Bulbar Paralysis," and under the sub-heading, "On a New, Probably Bulbar, Group of Symptoms," he described three cases in which the principal symptoms were ptosis; weakness of the neck muscles, so that the head hung forwards; weakness of the muscles of the jaw, so that mastication was difficult; disturbances of speech and deglutition, and weakness of the extremities. There were no decided muscular atrophy and no electrical reaction of degeneration and no mention is made of that most characteristic symptom, rapidly developing fatigue on muscular work. One case died, another recovered and the third passed away from observation. In the case that died no autopsy could be obtained, but Erb considered that the symptoms were caused by a lesion in the upper part of the medulla, quite different from the lesion of progressive bulbar paralysis.

In 1886, under the title "The Relation of Poliomyeloencepalitis to Basedow's Disease," Jendrassik[4] reported a case of probable myasthenia gravis, and in 1887, Oppenheim[5] published a case somewhat similar to those of Erb, but showing more decided remissions, which terminated fatally and in which the most careful macroscopic and microscopic examination revealed no lesions. A few months later Eisenlohr[6] published a similar case in which ptosis and weakness of other ocular muscles were prominent symptoms and in which the most careful macroscopic and microscopic examination after death failed to reveal any lesion.

Since 1887, many cases of "bulbar paralysis without anatomical lesion" have been reported and a distinct clinical entity has been slowly developed.

In 1891, Goldflam[11] added greatly to the definiteness of this group of symptoms by showing that the most characteristic clinical feature was an abnormally rapid tiring of the muscles, rather than an absolute paralysis of them; and in 1895, Jolly[21] still further defined the clinical picture by showing that a peculiar electrical reaction of the muscles and nerves, the "myasthenic reaction," was present in this disease.

Finally, in 1901, Weigert[73] went far towards establishing a pathological basis for this clinical entity by discovering in a typical case of myasthenia gravis a sarcoma of the thymus gland and an infiltration of the muscles by foci of lymphoid cells, which finding has since been confirmed in other cases and was present in the case reported below.

H. K., aged thirty-two years, unmarried, a locomotive engineer, who has been for many years in this country, but was born in Scotland, was admitted to the Albany Hospital on October 8, 1900. His father is of a nervous disposition, his mother strong and healthy. He has two sisters; the elder subject to dropsy, the younger a chronic invalid. None of the family have even been in a condition similar to that of this patient. He has used tobacco and alcohol moderately, has not suffered from rheumatism or any other illness, denies syphilitic infection, has always been strong and healthy, and in his youth was athletic and accustomed to over-exertion. Since being an engineer he has been frightened twice by railroad accidents. During the past two years he has had three attacks of severe headache, each lasting about twenty-four hours.

His present illness commenced nine months ago, when otherwise in perfect health, by a left sided ptosis of gradual onset, which compelled him to throw his head far back in order to see in front of him and which was always worse towards the latter part of the day. This was followed by a weakness in the neck muscles and, a month later, by weakness (*i. e.,* quick fatigue) of entire left hand, left forearm and right middle finger. Soon afterwards he noticed a difficulty in whistling and could not play on the piccolo, because of weakness both of fingers and lips. Six months ago the process extended to the left leg and for two weeks at that time there was a dull pain in the calf of the left leg. During the past three months the weakness has been fairly well distributed over the body, so that the following symptoms have been present: (1) double ptosis—left most marked; (2) difficulty in mastication, especially in eating corn on the ear, so that he soon becomes unable to approximate his teeth; (4) hoarseness, after talking, but voice is never of nasal tone; (5) weakness of hands—especially left, interfering with writing, buttoning clothes and any continued firm grasp; (7) weakness of legs. After a prolonged walk he complains of general exhaustion, accelerated respiration, cardiac palpitation and muscular tremor; his legs then give way and he is unable to rise without assistance; (8) this muscular weakness always comes on after continued use of any group of muscles and varies greatly in severity from time to time.

He has had no numbness, tingling, or vertigo and has shown no mental change; appetite has remained good, bowels regular and he has gained in weight. His friends have noticed no difference in the appearance of his face, except the ptosis. He was obliged to give up his work seven months ago, because he was unable to maintain his grasp on the lever of the engine.

Physical examination of patient on admission shows him to be of good muscular development and a well built, well nourished man of good color. His face is normal, except for double ptosis, most marked on left side. His tongue is moist and clean, his pulse is regular and of fair force and tension. His arteries are not thickened. Examination of the thoracic and abdominal viscera give normal results. All his muscles, although of good size and showing no atrophy, are weak (grasp of right hand sixty, of left seventy, on outer scale of Mathieu's Dynamometer, normal for such a man being 150 to 180). There is no complete paralysis of any muscles, although he cannot approximate the tip of thumb to the tip of the little finger of the same hand by a quarter of an inch. There is no anæsthesia or analgesia. Knee jerks and plantar reflexes are lively. No ankle clonus.

Urine is of amber color, acid reaction, sp. gr. 1023, and contains neither albumen, sugar, nor casts.

An examination of the blood shows: hæmoglobin ninety-eight per cent., red cells 5,940,000, white cells 7,300, smear normal.

The most striking symptom is the rapid tiring of his muscles in use. His gait is normal and he starts off briskly, but soon slows up and after walking some two hundred feet he is entirely done up, is extremely weak, cannot stand and both his pulse and respirations are very rapid. Motion of arms can be executed with considerable strength the first time, but each time that the motion is repeated the weaker it becomes. Sitting in a chair he can elevate both hands above his head strongly at first and can repeat this motion about a dozen times each time more feebly than the preceding. He fails utterly to do it on about the fifteenth attempt.

He tires most quickly in movements of the larger muscles and in movements associated with effort. He apparently does not easily tire in talking, nor in writing with his right hand, but he tires quickly when making letters or figures with his left hand. These tests were frequently repeated and, although they varied somewhat on different days, were in the main constant.

The grasp of his hand was tested on several occasions with the dynamometer. The closure of the hand upon the instrument being repeated just as quickly as the instrument could be read and the indicator hand replaced. The myasthenia varied on different days as can be seen from the following tests.

On Nov. 3d the right hand was tested; the readings being on the outer scale of Mathieu dynamometer: 60, 80, 80, 70, 65, 60, 60, 55, 50, 50, 40. 30, 30, 30, 30, 25, 30, 30, 25, 25, 25, 20, 20, 20, 20. On Nov. 28, right hand: 20, 32, 36, 36, 22, 18, 10, 0. Left hand: 24, 30, 30, 40, 30, 28, 22, 22, 20, 18, 20, 18, 15, 10, 10, 0.

The electrical tests were made on several occasions with the greatest care very kindly by Dr. Mosher; so that there can be no doubt as to their accuracy. Some of these examinations are reported below.

October 12, 1900, 4 P. M

Faradic current.

Left biceps muscles. Faradic current applied continuously with anode over deltoid and cathode at motor point of biceps. The primary effect was a tetanic contraction lasting fifteen seconds, followed by intermitting jerky contractions, with the muscle partly but not completely relaxed in the intervals, the intervals becoming noticeably longer after two minutes, but the contractions not less powerful, until after three minutes both the interval became longer and the jerky contraction less powerful. During the fifth minute there were fifteen of these jerky contractions, ten in the first half and five in the second. On removal of the sponges there was a strong increase in muscular tone, the muscular tone remaining for ten or fifteen minutes.

A similar test of left median nerve showed same gradual diminution of Faradic excitability and when the current was rapidly intermitted, so as to produce a rapid succession of tonic contractions, these contractions became less and less extensive and less and less powerful in the median distribution until they ceased altogether. The first effects of the median nerve test were seen plainly in movements of the wrist and flexion of the fingers, which grew steadily weaker and finally ceased.

The above test was made with the strongest current obtainable from the battery. A very much weaker current applied to another patient gave a strong and persistent tetanic contraction.

Galvanic current. Right median nerve and long flexor muscles. Minimal contraction eight milliamperes. Tetanic contraction fourteen milliamperes. Rapid interruption of the current gave rapid tonic contractions of all muscles concerned and these continued undiminished, until the increase of the burning sensation, caused by the current, produced so much pain that the experiment was, necessarily, stopped. These tests were made with the kathode and all contractions were prompt and lightning-like.

October 25, 1900.

Faradic current.

Right gastrocnemius and soleus gave a wavy, intermitting contraction to a strong current, which produced a tetanic contraction in a healthy person.

	K. C. C.	A. C. C.	A. O. C.
		Milliamperes	
Right Gastrocnemius and Soleus Muscles.......	8	16	
Right Peroneal Nerve........................	6	14	10
Left Forearm Muscles........................	8	10	
Left Biceps Muscle..........................	8	12	
Left Median Nerve	10	12	20
Left Ulnar Nerve............................	4	8	
Right Musculo-spiral Nerve..................	8	—	
Right Supinator longus Muscle...............	10	16	

In a normal person, according to Mosher,[122] the excitability of the median nerve varies from 0.3 to 1.5 milliamperes, that of the ulnar nerve varies from 0.2 to 0.9 milliamperes, and that of the musclo-spiral nerve varies from 0.9 to 2.7 milliamperes.

December 9, 1900, the patient has very slowly grown worse. He cannot walk as far as he could on entrance. The ptosis has a little increased. There is a decided weakness of both zygomatic muscles, especially the right. When he laughs he opens his mouth and makes the sound of laughter but his facial muscles do not contract as in laughter, the upper lip is not elevated. His voice has now a nasal tone. The muscles of his neck do not support his head as well as formerly; so that when looking out of the window he has to support his head on his hand.

He has been given various forms of treatment, but the only treatment which seemed to have any good effect was the galvanic current applied to the muscles, and strychnine hypodermatically. The hypodermics of strychnine were gradually increased until he took strychnine nitrate, one-third grain once daily. Yesterday after having taken this large dose for four or five days, he had extreme orthopnœa for a few minutes, about three-quarters of an hour after receiving the injection. The injections were ordered discontinued. To-day he is feeling pretty well again. Since he has been in the hospital his morning temperature has been about ninety-seven degrees and his evening temperature about ninety-eight degrees. His pulse has been about eighty.

Patient left the hospital on December 9, 1900, and returned to his home in Schenectady.

May 16th, 1901. Dr. Hun saw patient in Schenectady this morning. He is able to walk about the yard, but cannot raise his feet to go up steps of any height and he is slightly weaker than when he left the hospital. His spirits are remarkably good and his mind clear. The ptosis is almost complete, and is one of his most annoying symptoms. Grasp of hand is weak and cannot be sustained any length of time. He cannot raise both hands above his head; the most he can do is to raise one hand to the level of his head twice. His power fails very rapidly under repeated efforts. His laugh is of the very peculiar character noted when in hospital. His speech is more decidedly impaired. He has much trouble in masticating and swallowing food. Food collects in roof of mouth, and is swallowed with difficulty. There is a distinct right sided facial paresis, especially of lower branch. He is entirely unable to whistle. Knee jerks more lively than normal, no ankle clonus. Sensibility intact. He can recognize all sorts of things placed in his hands when his eyes are closed. He is fat and his muscles seem firm and well developed. When he leans forward out of a window he is obliged to support his head on his hands. During his entire illness, but especially lately, he is much worse when he is cold. Even a slight exposure to cold makes him much weaker. He is now taking a mixture of quinine, iron and strychnine, in mild doses. Since leaving the hospital he has taken thyroid extract without any good effect. While in the hospital he took phospho-albumin without good effect.

November 14th, 1901. Patient grew steadily weaker, was troubled by frequent attacks of paroxysms of suffocation and died in one this evening. The following extract from a letter from Dr. Duryee, of Schenectady, who kindly sent the case to me originally, shows the final end of the illness.

"He had at frequent intervals very severe attacks of dyspnœa which in his later days were dreadful to witness. Of course he was for a long time on liquid diet and even this was sufficient to provoke the attacks, from which it seemed almost impossible for him to survive and the end came in this way."

To George Blumer, formerly of the Bender Hygienic Laboratory, now of San Francisco, I am indebted for the full notes of the autopsy.

Died November 14th at 6:30 P. M. Autopsy November 15th, 1901, at 11:15 A. M. Weather cold. Body of a moderately strong built, somewhat emaciated man. Rigor mortis well marked. Post-mortem lividity slight. Surface pale. No œdema. Mucous membranes pale. There is no localized muscular wasting, and no more general wasting than would be explained by the degree of emaciation. The subcutaneous fat is moderate in amount. The muscles are not atrophied, and, aside from a slight pallor, show absolutely nothing abnormal to the naked eye.

The peritoneal cavity is free from fluid. Both layers of the peritoneum are smooth. The omentum is delicate and free from adhesions. The appendix passes downward and inward across the pelvic brim, and is normal, both externally and on section. Foramen of Winslow is open. Diaphragm—on the right side at the third space, on the left side at the fourth rib.

The costal cartilages are not ossified. The lungs collapsed on opening the chest, leaving a normal sized precordial space. The pericardium contains an excess of fluid and is normal, both layers are smooth. The right side of the heart contains red post-mortem clots. The endocardium and valves are normal. The muscle wall is of normal thickness. The left side of the heart is almost empty. The endocardium and valves are normal, except for one or two opaque patches of fatty degeneration in the aortic leaflet of the mitral valve. The heart muscle is extremely flabby, on section, slightly browner in color than normal and rather opaque. The coronaries show one or two patches of fatty atheroma. The auricular appendages are free from clot. Foramen ovale closed.

Left lung—Bound to the chest wall by old adhesions laterally. Outside of the area of adhesions the pleura is smooth, except for a superficial area of cicatricial tissue posteriorly, just below the apex. This area is about two and one-half centimetres in diameter. The left lung is crepitant throughout. The upper lobe is perfectly normal in appearance. The lower lobe is congested posteriorly, but entirely free from any consolidation whatever. The bronchi and blood vessels of the lung are normal.

Right lung—Is also bound by adhesions laterally and at the base. Adhesions are old and firm. The upper and middle lobes are crepitant and normal in appearance. The lower lobe feels consolidated. The portions removed sink in water, and on section this portion of the organ is in a condition of splenization, red in color and finely granular. A small quantity of mucoid pus can be squeezed from the bronchi on this side, and their mucous membrane is congested. The larger blood vessels are quite normal.

Spleen—Is free from adhesions and normal in size, but is much reduced in consistency. On section it presents a mottled appearance, the pulp being congested in some places, somewhat anæmic looking in others. The Malpighian bodies are not visible, except here and there.

Liver—Is free from adhesions; normal in size. The consistency is slightly decreased. On section the organ is distinctly cloudy but shows no other change. The gall-bladder is normal.

Kidneys—Are both alike. Normal in size. The capsule strips off easily. The cortices are not increased in amount, and the organs are in every way normal in appearance.

The ureters are both normal.

The adrenals are normal, except for slight postmortem changes in the right adrenal.

Bladder—Is normal.

Prostate gland—Is rather large and succulent, but not appreciably abnormal.

The œsophagus and the stomach are normal in appearance.

The intestines both above and below the valve show no marked changes.

The mesenteric lymph glands—At one point in the mesentery are a number of them enlarged and fused together, forming an irregularly nodular mass, some ten centimetres in diameter. This mass has a stony hardness, and on section it is found that the cortical portion of the glands is completely calcified, the cavities so formed containing a thick, caseous material.

Thyroid gland—Is normal in size and appearance.

Trachea—Is normal.

The aorta and its main branches show nothing beyond a few streaky patches of fatty degeneration of the intima.

Thymus gland—Situated in the anterior mediastinal space, behind the manubrium sterni, is a rather soft, almost fluctating globular tumor mass, measuring about five centimetres in diameter. Examination reveals that this tumor mass is connected with neither the trachea nor the œsophagus and exercises absolutely no pressure upon either of these structures. The growth nearly occupies a position which is occupied during the early years of life by the thymus gland, though possibly it is a trifle lower than where the thymus gland is usually situated. On section this growth is found to consist of an exceedingly soft cellular neoplasm, parts of which are distinctly hemorrhagic and have about the appearance and consistency of anchovy paste, whilst other parts which are not hemorrhagic, have a slightly granular, gray-white color and the appearance of a cellular sarcoma. The growth is surrounded by a connective tissue capsule, which has the appearance of having been formed simply by the pushing aside and condensation of the connective tissue of the neighborhood.

Hair of the scalp thin and fine—moderate grade of uniform baldness. Otherwise scalp is normal. Skull-cap is of average thickness. Dura normal. Convolutions can be seen through it. Superior longitudinal sinus contains posteriorly a few small blood clots. Brain is firm in consistency, keeping its shape when placed upon a flat surface. Paracentral lobules on each side seem somewhat smaller than normal, otherwise there is no abnormality evident to the naked eye in the fore, mid, or hind brain. Brain was not opened being saved for preliminary hardening. Blood vessels normal. Sections through spinal cord at cervical and lumbar enlargement show nothing abnormal to the naked eye.

Anatomical diagnosis: Myasthenia gravis (so-called bulbar paralysis without anatomical lesions). Brown atrophy of the heart with fragmentation of the myocardium. Hypostatic congestion of the lungs with bronchitis. Double chronic adhesive pleurisy, and healed tuberculosis of the apices. Loose pneumonia of the right lower lobe. Cloudy swelling of liver. Quiescent caseo-calcareous tuberculosis of the mesenteric lymph glands. Slight fatty degeneration of the intima of the aorta. Sarcoma of the anterior mediastinum, possibly originating in the remains of the thymus gland.

Bacterioscopic: Cover-slips from the consolidated portion of the lung showed a few lancet-shaped diplococci, corresponding in appearance to the micrococcus lanceolatus.

Cover-slips from the caseous material in the mesenteric glands showed a very few tubercle bacilli.

Cultures from the liver, spleen and kidney remained sterile.

Cultures from the lung showed the micrococcus lanceolatus with the colon bacillus.

Bacteriological diagnosis: Infection of the lung with the micrococcus lanceolatus and the colon bacillus.

For the microscopical examination of autopsy tissues, I am indebted to the kindness of my former assistant, Dr. George L. Streeter, now of the Johns Hopkins Medical School.

The pathological findings in the microscopical examination of the various organs are limited to the tumor involving the thymus gland and metastases from this in the muscles. The central nervous system and other tissues are in all appearances normal.

On section the tissue representing, or replacing, the thymus is found to consist of irregular columns or islands of cuboidal epithelioid cells with large granular protoplasmic bodies and rather large pale nuclei. Surrounding these, and about equaling them in number, is a second type consisting of small round cells, each containing a deeply staining nucleus which fills almost completely the cell body. The latter resemble the lymphoid cells found in all lymphatic tissue and forming the greater part of the substance of the thymus. The first type is also encountered in the normal thymus, where it generally shows a tendency to retrogression and the formation of the corpuscles of Hassal. There is, however, little tendency in this case to atrophy or concentric arrangement of these epithelioid cells. On the contrary, they present the appearance of marked proliferation, and of glandular activity. The tumor is well provided with blood vessels. In the tumor tissue there are seen many free blood cells and in some places large extravasations of blood. All these changes are shown in figure 2 of the accompanying plate.

It will be observed that the picture here presented closely resembles the description of a thymus tumor given by Weigert,[73] which was in a case of similar clinical nature. It is especially interesting as the muscle metastases reported in Weigert's case are here repeated and are almost identical in character. In the pieces of muscle taken from the chest and upper arm are found small circumscribed infiltrations, or clumps, of lymphoid cells

To Illustrate Dr. Hun's Article on "Myasthenia Gravis".
Albany Medical Annals. January, 1904.

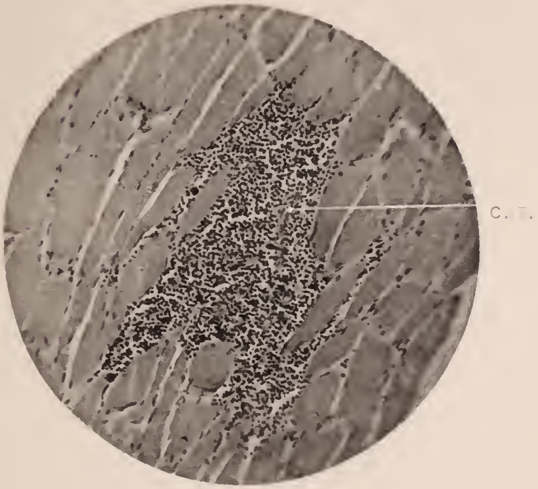

Fig. 1.—Section of muscle showing lymphoid infiltrations. The letters C. T. indicate a strand of connective tissue surrounded by the infiltrating cells.

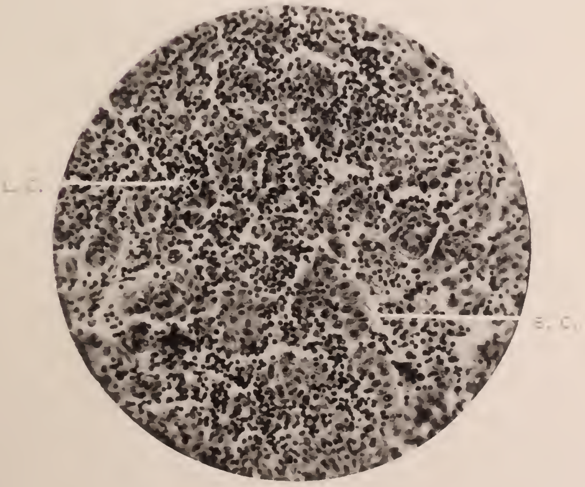

Fig. 2.—Section of the tumor involving the thymus. The letters E. C. indicate a column of epithelioid cells. The letters L. C. indicate lymphocytes.

resembling the small round mononuclear cells of the thymus. Scattered among these there are many red blood cells, a very few polymorphonuclear leucocytes, and an occasional eosinophile cell. The epithelioid cell forming the larger type in the thymus is almost entirely lacking. These cell-groups lie in the connective tissue between the muscle fibres, and show a tendency to envelope and follow the large and smaller blood vessels. A strand of connective tissue lying in the midst of one of these clumps can be seen in figure 1. The muscle fibres, even in the direct vicinity of the infiltrations, retain their cross striping, and do not appear to any extent altered or atrophic.

In the accompanying heliotype plate are reproduced photographs of the tumor and the muscle metastases.

The clinical course of this disease directs attention toward the nervous system, and one proceeds with the lurking hope that something here may yet be found, despite the negative results in the cases previously reported. Tissues, however, from the nervous system in this case are in all appearances entirely normal. As the material was fresh it was possible to make satisfactory Nissl preparations for cell study. The various regions of the cortex of the cerebrum and cerebellum were prepared in this way, as well as sections from the medulla, spinal cord, and ganglia; but the cells throughout appear normal in number, in the structure of their protoplasm and dendrites, and in the size, position, and structure of the nucleus. In the same regions the results with Van Gieson, Weigert, and Marchi preparations likewise fail to show any evidence of atrophy or degeneration. The neuroglia does not appear anywhere to be present in more than the normal amount. The hypoglossal region was normal.

In examining the peripheral nerves the oculomotor nerve was selected for the reason that it was possible to remove it in its entirety, also because the levator palpebræ superioris which it innervates had exhibited the myasthenic reaction from the first, and perhaps more constantly throughout the course of the disease than any other muscle. Transverse and longitudinal sections taken from different parts of this nerve, and prepared after the methods of Van Gieson, Weigert, and Marchi do not show anything abnormal.

Sections were examined taken from the heart, lung, liver, kidney, spleen, pancreas, adrenal, and prostate with negative results. No metastases were observed in any of them.

Diagnosis: The changes described in the thymus recall the hyperplasia of the thymus associated with the status lymphaticus, the pathology and clinical significance of which has been recently pointed out by Blumer.[128] In our case, however, there is not only hyperplasia of the lymphocytes, but there is also an equally marked proliferation of the epithelioid cells. A relation between the two is rendered further unlikely by the lymphoid metastases, which do not seem to occur in the status lymphaticus. The possibility that such an infiltration might be of inflammatory origin was considered and rejected by Weigert. He concluded that the process was one of malignant nature. In accord with this observer it is determined to regard the present case as one of lymphosarcoma of the thymus with muscle metastases.

The case can be briefly summarized as follows:

Clinically. A male, aged thirty-two years, without hereditary taint, or known cause, except possibly over-exertion or fright, gradually exhibited ptosis, and a muscular weakness slowly extending downwards to the neck, to the arms and hands, and six months later to the legs. This weakness, at first limited to the left side, extended in the course of nine months to almost all the muscles on both sides of the body. The involvement of the face muscles gave a peculiar character to the smile and laugh and made whistling impossible; while speech and deglutition were much impaired and dyspnoea was a prominent symptom. The muscular weakness did not amount to complete paralysis; it varied greatly in intensity, was worse towards the end of the day and in especial, was associated with a rapid tiring of the muscles. Electrical examination of the muscles with the faradic current gave the myasthenic reaction (rapid exhaustion of the muscle under faradic excitation), and the muscles were very inexcitable by both currents; galvanic currents ten times as strong as normally required being necessary to produce contractions, which contractions did not show a rapid diminution in intensity under repeated stimulation, as was the case in faradic excitation. There was present no trace of any electrical reaction of degeneration, no muscular atrophy and few, if any, sensory disturbances. The course of the disease was chronic. variable, but slowly progressive and it terminated in death from suffocation or dyspnoea in less than two years from its onset.

Postmortem findings (*lesions*). A most careful examination, macroscope and microscopic, of the organs of the body failed to reveal any changes in the central or peripheral nervous organs and no distinctive or noteworthy changes in any of the organs of the body, except an infiltration of the muscles and of the thymus gland with lymphoid tissue and a proliferation of the glandular elements of the thymus; the changes in this gland suggesting lympho-sarcoma.

The combination of symptoms above given is typical of myasthenia gravis. It is so characteristic and so clearly defined that many similar cases have been reported, which from their clinical history alone were undoubted cases of this disease, even though the diagnosis was unverified by autopsy.

The very complete and accurate postmortem examination in this case adds greatly to its value.

For the purpose of comparison with the case above reported, I have selected cases of myasthenia gravis from medical literature. I have excluded, on account of doubtful, or complicated diagnosis, or of too brief reports, the cases of Mayer[19], Devie and Roux[29], Grocco[32], Brissaud and Lantzenberg[39], Mailhouse[41], Angelini[50], Allbutt[57], Moyer[115], Jacoby[99], Patrick[100], Hingston and Stoddart[92], Dejerine and Thomas[74], Hensen[95], Grosz[97], Diller[114], and the second case of Kollarits[94]. Included among the tabulated cases are a few of rather doubtful diagnosis: Montesano[47], Kowjewinkoff[34], Karplus[37], Senator[12] and one or two of Goldflam's[90] cases.

Etiology. Our patient was a male, thirty-two years old. Of the one hundred and fourteen tabulated cases forty were males and seventy-two females, nearly twice as many females as males. In two cases the age was not noted. The disease first manifested itself most often between the ages of twenty and thirty years. Under ten years of age there were but three cases; between ten and twenty years, seventeen cases; between twenty and thirty years, forty-six cases; between thirty and forty years, twenty-five cases; between forty and fifty years, thirteen cases; between fifty and sixty years, five cases, and between sixty and seventy years, three cases. In two cases the age was not noted. There is much doubt as to diagnosis in those cases which occur very early in life. Mailhouse[41] reports a case occurring in a child two and one-half years of age, which is of such doubtful diagnosis that it is not included in this tabulation. Of the three cases under ten years of age tabulated above, one, a child of four years and another of five years, reported by Goldflam[90] and by Karplus[37] respectively, are both of rather doubtful diagnosis, but in the third case, a child of eight years, reported by Gowers[86], the diagnosis is more satisfactory. The oldest of the tabulated cases was sixty-nine years old, reported by Raymond[64]; although Hingston and Stoddart[92] report the case of a man aged seventy-one years, who presented a fairly typical clinical picture of myasthenia gravis, but as he was also suffering from Bright's disease, diabetes, etc., his case was not included in the tabulation.

Our patient was a locomotive engineer; but occupation appears to play no part in the causation of this disease. Indeed no hereditary or acquired cause for the disease could be assigned in his case, except that he had at one time over exerted himself, had been badly frightened and had recently suffered from headaches. All three of these conditions are occasionally found preceding myasthenia gravis.

Among the tabulated cases, no etiological factor was noted in twelve, and none could be discovered in forty cases. Nervous causes were assigned in forty-two cases (neuropathic predisposition in thirteen, neurotic individuals in seven, migraine in eight, mental strain and anxiety in eleven, poliomyelitis in one, fright in two). Infection was assigned in twenty-two cases (tuberculosis, actually present or in the family in nine cases, influenza in six, typhoid in two, diphtheria in two, malaria in three); toxic causes in seven cases (alcoholism in three, rheumatism and gout in four); exhausting causes in twelve cases (overwork in nine, masturbation in two, diarrhoea in one). In many cases more than one cause was assigned. In nine cases pregnancy was noted as being associated with this disease, which is not a large proportion in seventy-one women in the middle of adult life. From this multiplicity of assigned causes it is evident that the real cause of the disease is unknown.

Symptomatology. In our patient the disease commenced gradually and insidiously and first showed itself by ptosis. Among the tabulated cases this is the usual history. In ninety-five per cent. of the cases the disease commenced slowly; in the sense that although one symptom may suddenly appear, although more commonly it comes on very gradually, yet days, weeks, months, or even years may elapse before the other symptoms appear. In Karplus'[37] case, ocular paralysis occurred intermittently each year during nineteen years before the other symptoms of myasthenia gravis appeared. Even in such a rapid case as that reported by Devendorf[106], which terminated fatally in twenty-nine days from the onset, two days elapsed between the appearance of the first symptom and the second, and fourteen days elapsed before the disease was fully developed. In cases reported by Goldflam[11, 15] the symptoms developed so rapidly that in two weeks the patients were unable to leave their beds.

In rare cases the disease commences with pain in the neck muscles, or in some other part of the body. In the overwhelming majority of the cases it commences by general weakness, or by weakness of some one muscle, or group of muscles. Ptosis was the first symptom to appear in thrity-seven of the tabulated cases (thirty-three per cent.), and the second symptom in twelve; thus a very early symptom in nearly half of the cases. When it is remembered how easy it is for a patient not to notice a slight ptosis, this proportion seems all the more remarkable. In four cases the ptosis was unilateral, as it was in the early stages of the case reported in this paper, Goldflam[15], Kowjewnikoff[34], Raymond[64] and Fajerstajn[27].

In the tabulated cases the first symptom (weakness) occurred in the distribution of the nerves arising from the gray matter in the floor of the Aqueductus Sylvii in fifty cases (ptosis in thirty-seven cases, diplopia in thirteen, thus ocular paralysis in forty-five per cent. of all cases); in the distribution of the nerves arising from the gray matter in the floor of fourth ventricle in twenty-five cases, (difficulty in speech in sixteen cases, difficulty in deglutition in four, facial paralysis in three, weakness of muscles in two, thus facial, hypoglossal and spinal accessory paralysis in twenty-three per cent. of all cases); and in the distribution of the nerves arising from the anterior horns of gray matter in the spinal cord in thirty-seven cases (weakness of arms or legs or both in thirty two per cent.). The first symptom was not noted in two cases.

During the time that our patient was in the hospital he exhibited double ptosis, double facial paralysis, bulbar paralysis, dyspnoea, and general weakness of all the muscles of his body. Even more marked than the weakness was the rapid tiring of the muscles on use and upon stimulation by the faradic current.

This is the typical clinical picture of this disease. It is really surprising how accurately it is duplicated by the great majority of the reported cases. Greater uniformity is met with in few diseases. In the majority of cases the weakness commences in the ocular muscles, involves next the facial muscles and muscles of speech, next those of deglutition, and finally extends downwards to the muscles of the arms and legs. But in a large minority of cases this is not true; indeed the reverse may take place or the extension of the paralysis may be altogether irregular. Usually the muscles which are most constantly in action show the greatest weakness (result of tiring) but this is not always the case. Certain groups of muscles and those not always in most constant use may alone be affected; the others being entirely normal. Muscles which do not show tiring on use may show the electrical myasthenic reaction and vice versa, and in any given case, even though it be severe and advanced, some of the muscles may not show either of these phenomena. In almost every case of myasthenia gravis, without exception, there is sooner or later ophthalmoplegia externa, diplegia facialis, dysarthria, dysphagia, and weakness of neck, trunk, arms and legs more or less pronounced.

Bulbar paralysis, to a greater or lesser degree, was present in all the tabulated cases. Weakness of the extremities was present in all the cases except in one reported by Goldflam[90], which case is of doubtful diagnosis on account of the youthful age of the patient and of other reasons. Ocular paralysis was present in all but four cases: Ivanow[28], Senator[12] and Kollarits[94]. The cases of Senator are in some respects doubtful cases. The ocular paralysis affects the external muscles of the eye only, the internal ocular muscles never being paralysed. Ptosis was present in over eighty-five per cent. of all cases. Dyspnoea was not such a constant symptom, but was noted as being present in sixty cases.

The weakness of so many muscles gives to the patient a characteristic expression. The double ptosis causes a sleepy appearance, which is associated rarely with a strabismus or nystagmus and more frequently with an inability to completely and firmly close the eyelids. The diplegia facialis renders the face expressionless and gives a peculiar apathetic, even sinister, character to the laugh, in that the facial muscles play no part in it. The mouth is usually open and the head often hangs forward; while in other and less severe cases, on account of the ptosis and weakness of the occipito-frontalis muscles, the head is held flexed backward to enable the patient to see. The weakness of the muscles of the arms and legs shows itself in rapid exhaustion upon active movements, and this exhaustion is accompanied by rapid pulse and respiration, often also by tremor and sweating. In speaking, the voice, at first normal, soon becomes nasal and in many cases speech soon becomes indistinct, and complete aphonia has resulted when the patient has counted up to the number forty or fifty. (Fajerstajn[27], Kalischer[3] et al.). Weakness, or myasthenia, of the laryngeal muscles has been seen with the laryngoscope in cases of Hoppe[13], Bernhardt[10], Oppenheim[70], Cohn[35], Senator[12 50], Ivanow[28], Punton[55], Buzzard[61]. Eating is a difficult and slow process, weakness and rapid exhaustion being present in some or all of the muscles concerned: those of the lips, the tongue, the masseters and temporals, and most frequently of all in the uvula and the pharyngeal muscles. Finally a very striking symptom of the disease is dyspnoea. It occurs after exertion and in spontaneous paroxysms of great severity. Indeed the patients usually die in an attack of dyspnoea, either spontaneous or caused by choking while eating. All these characteristic features of the disease are more marked towards the end of the day and after exertion, and may be entirely absent in the early morning after the night's sleep.

As may be inferred from the preceding paragraph it is difficult to describe the weakness of myasthenia gravis without mentioning the rapid muscle tiring also present. The first few movements may be executed with considerable force, although less than normal, but each subsequent movement becomes weaker and weaker until very quickly its execution becomes impossible, or is very feeble. The symptom of rapid muscular exhaustion, or tiring, on use was first distinctly pointed out by Goldflam[11]. Since that time this symptom has been noted as being present in every case, except in those of Montesano[47], Senator[12], Charcot and Marinesco[23], Schule[60], Geise and Schultze[69], and Hunter[81]. It was stated at the outset that the cases of Montesano and of Senator were of doubtful diagnosis. In the case of Geise and Schultze, although the muscles did not show tiring upon voluntary efforts, they exhibited the myasthenic reaction. In this connection it is of interest to note that in the cases reported by Auerbach[82] and by Murri[116], although the muscles showed but slight tiring on repeated voluntary efforts, rapid exhaustion was produced by the faradic current. This rapid tiring of the muscles is one of the most characteristic symptoms of the disease and some observers such as Jolly[21] and Struempell[25], have regarded it as sufficient to explain the paresis; in that the muscles are tired rather than paretic, and that those muscles constantly in use, as the levator palpebrae, are constantly tired and ptosis is therefore a constant symptom. There is doubtless much truth in this observation, but that, in addition to the tiring, a paresis is also present is shown by the weakness of the muscles of the arms and legs even when completely rested. This phenomenon of rapid tiring is not met with usually in all the muscles and in many cases it is confined to a few muscles or a group of muscles.

Of course muscle tiring occurs physiologically and pathologically, for a discussion of which see Kollarits[94], but in no other disease does it attain the extreme degree, which is common in myasthenia gravis. The combination of weakness and rapid exhaustion in this disease causes every continued act, such as eating, to be executed very slowly.

The tiring is limited to the group of muscles contracted in the great majority of cases, but in some cases, activity in one group of muscles will cause tiring not only of them but also of adjacent or even remote muscles. Thus Goldflam[90] found in one of his cases that tiring of the other facial muscles increased the ptosis, while tiring of the extremities did not; and Finizio[42], Buzzard[61], Laquer[43], Punton[55], Fajerstajn[84] and others have reported cases in which tiring of one group of muscles caused tiring of other muscles. Mosso[8] has shown that this is also true of physiological fatigue. This phenomenon of muscle tiring is, in the great majority of cases, confined to voluntary acts; the purely reflex acts of the eye and extremities do not show any abnormal tiring. In a case reported by Brissaud and Lautzenberg[39] of such doubtful diagnosis that it was not included in the tabulation, the pupils did not react either to light or to accommodation, and in the cases reported by Goldflam[15], Kalischer[33], Sinkler[54], Struempell[25], Ivanow[28] and Collins[26] there was a slow tiring of the knee-jerk after many responses; while Jolly[21], Campbell[53], Buzzard[61], Laquer[43] and others could discover no such tiring of the knee-jerk. Unverricht[49] claims that this tiring of the knee-jerk is not very rare in other conditions than myasthenia gravis. It is mainly this rapid muscle tiring which makes this disease so variable in its manifestations. The weakness varies from day to day and from hour to hour, according as the muscles are more or less tired. The weakness is always worse in the evening, the muscles becoming tired by their work through the day. To this rule there is only one exception among all the tabulated cases. In the case reported by Auerbach[82], although a typical case and one carefully observed, the muscular weakness was always more marked in the morning than in the evening.

The electrical reaction of the nerves and muscles in our patient was the same as that pointed out by Jolly[21] in 1895. The muscles tired very quickly when stimulated to tetanic contraction by the faradic current. This so-called "myasthenic reaction" was noted as being present in forty, and absent in seven of the tabulated cases. It is very variable, being sometimes present, sometimes absent, in the same case, and is often present in only a few of the affected muscles. It also varies in degree, being very marked in some cases and very slight in others. In some cases when the muscles were exhausted by the faradic current they could not be easily contracted by efforts of the will, as in the cases reported by Jolly[21] and Unverricht[49], but more commonly the muscles contract under efforts of the will even when completely exhausted by faradic excitation, as in the cases of Down[89], Murri[22], Kalischer[63] *et al.* In several cases it has been found that a muscle exhausted completely, first by faradism and immediately afterwards by voluntary contractions, will still respond readily to the galvanic current; Campbell and Bramwell[66 p 296]. This has also been found by other observers. For the excitations of the muscles in our patient by the faradic or the galvanic current, unusually strong currents, about ten times as strong a galvanic current as is usually necessary, was required. This fact was noted by Jolly[21] and by nearly every other observer, I believe, who measured the strength of the galvanic current employed, although this is doubted by Oppenheim[70 p 81]. These cases are too numerous to quote them. On the other hand Hey[111] found in one case a greatly increased excitability of the muscles to the faradic current. It is usually impossible to exhaust the muscle by repeated excitations by the galvanic current, as was the case in our patient. An exception to this rule is Unverricht's[49] case.

In regard to the "myasthenic reaction," it is important to remember that it occurs not only in myasthenia gravis but also in other conditions, both physiological and pathological. Mosso[8] has shown that a somewhat similar reaction ("perhaps in consequence of chemical changes in the muscles") occurs in persons whose brains are tired by intellectual effort. In such cases the muscles also tire abnormally quickly upon voluntary effort. Further, as regards diseased conditions, Benedict[1], in 1868, described an "electrical reaction of exhaustion" occurring in certain paralyses of cerebral origin, and this reaction has since been described as occurring in apoplexy, chronic poliomyelitis, hypertrophic dystrophies, and a number of other diseases (Jolly[21], Kollarits[94], Flora[79], Feinberg[62]). In spite of these exceptions the myasthenic reaction is one of the most important and characteristic symptoms of myasthenia gravis, but like the allied symptom of rapid tiring, it is often limited to a few muscles, or groups of muscles.

The symptoms present in our case included all those usually present in the reported cases. It is of interest to note, however, that in nine of the reported cases Jendrassik[4], Kalischer[33], Goldflam[15, 90], Karplus[37], Charcot and Marinesco[23], Murri[22], Oppenheim[70], Hey[101], and Finzio[42], symptoms of Basedow's disease, more or less pronounced (exophthalmos, or goitre, or both) were persent. In a number of other cases there was slight prominence of the eyeballs, apparently due to weakness of the recti muscles and of the orbicularis palpebrarum. In six of the reported cases Oppenheim[70], Senator[12], Struempell[25], Dreschfeld[16], Mendel[71] and Hingston and Stoddart[92] albuminuria or albumosuria was present.

As in our case, so in the reported cases, there are very slight subjective, and no objective, sensory symptoms, except in the cases reported by Senator[12], Ballet[51] and Wilbrand and Saenger[52]. The electrical reaction of degeneration is not present and no muscular atrophy has been noted, except in a few of the earlier cases of Erb[3], Dreschfeld[16], Laquer[43], Kowjewnikoff[34], Berkley[38] and Kostetzki[48], which latter case is of very doubtful diagnosis. Mental abnormalities play no part in this disease.

The course of the disease was chronic in one hundred and eight of the tabulated and was acute or subacute in five:

Senator[12], Devendorf[106] in twenty-nine days, Widal and Marinesco[36] in less than sixteen days, Guthrie[63] in five weeks, Goldflam[90] in fifteen days after a relapse.

The disease presented decided variability in the intensity of the symptoms from day to day in ninety-eight of the tabulated cases and increased steadily without marked variations in sixteen. In forty-two of the tabulated cases there were intervals of weeks, months, or years, in which symptoms were greatly improved, or altogether absent, and later the case relapsed into its former, or into a worse, condition. Even where the disease shows no distinct intermissions and relapses, it is usual for it to extend to other parts, and to progress in the parts already involved, intermittently and irregularly by exacerbations. In other cases the process and extension are gradual and continuous. The variability is so constant and the relapses so frequent that they constitute characteristic features in the clinical picture of this disease.

In regard to the termination of the disease, fifty of the tabulated cases died, seven recovered and fifty-seven were living, some improved, some unimproved, at the time the cases were reported.

Pathological anatomy. In our case a careful examination revealed no lesion of any part of the nervous system. The muscles, however, showed numerous foci of infiltration with lymphoid cells and the thymus gland was the seat of a lympho-sarcoma. The results of the autopsies in the reported cases may be tabulated as follows:

Fatal cases, fifty; no autopsy in eighteen; an autopsy in thirty-two cases; negative findings in the nervous system in seventeen cases.

Findings in the nervous system:

(a) Old hemorrhage in corpus callosum, Berkeley,[38] one case.
(b) Minute recent hemorrhages, with unaltered red corpuscles, in floor of fourth ventricle and of aqueductus Sylvii, Hoppe,[13] Charcot-Marinesco,[23] Murri,[22], Cohn,[85] four cases.
(c) Slight changes in motor nerve nuclei in medulla, etc.
  (x) Chromatolysis, Widal-Marinesco,[36] Murri,[22] Burr and McCarthy,[101] three cases.
  (y) Doubtful degenerative changes, Sossedorf,[31] Myers,[112] Battin and Fletcher,[110] two cases.
(d) Slight changes in cranial motor nerves.
  (x) Smallness of fibres, Eisenlohr,[6] Oppenheim,[7] two cases.
  (y) Exudate between fibres, Oppenheim,[5] Fajerstajn,[84] Liefman,[98] three cases.

(e) Developmental abnormalities with normal nerve cells and fibres.
    (x) Septum in aqueductus Sylvii with reduplication of the canal, Oppenheim,[7] one case.
    (y) Septum in central canal of cord with reduplication of the canal, Senator,[12] one case.
(f) Sclerosis of spinal cord, Long and Wilki,[78] one case.

Findings outside of the nervous system:

(a) Multiple tumors, Senator,[56] one case.
(b) Enlarged Thymus, Hoedelmoser,[118] Link,[104] two cases.
(c) Lympho-sarcoma of Thymus, Weigert,[78] one case.
(d) Lympho-sarcoma of Lung, Goldflam,[90] one case.
(e) Lymphoid infiltration of muscles, Weigert,[78] Goldflam,[90] Link,[104] three cases.

It appears from the summary above that there is no evidence that this disease is associated with any lesion of the nervous system. In more than half of the autopsies no lesion could be found. It is evident that recent hemorrhages cannot explain a chronic disease. They may rather be merely indications that death resulted from dyspnoea and asphyxia. The other leisons are very slight, were found mostly in early cases, and in only two or three of them, and have not been confirmed by more recent autopsies.

Somewhat different is the case of the lesions found outside of the nervous system. The finding of Weigert of a lympho-sarcoma of the thymus gland with a lymphoid infiltration of the muscles is duplicated exactly by the result of the autopsy in our patient, and also in the case of Link, except that in Link's case the thymus was persistent only and showed no structural change. In a case described by Oppenheim[70 p 114] of doubtful diagnosis, but closely resembling myasthenia gravis, there was a sarcoma in the anterior mediastinum. Very interesting is the case of Goldflam[90] in which there was a lympho-sarcoma of the whole upper lobe of one lung, which may or may not have had its origin in the thymus gland; and in the muscles were found foci of lymphoid infiltration. Furthermore this same infiltration was found in a portion of the deltoid muscle removed from this same patient about a year before death. In a portion of muscle excised from another patient Goldflam found no such infiltration, but as all the muscles do not show this infiltration in any case this negative finding is no proof that such infiltration was not present in other muscles. When it is remembered that no special attention was paid to the thymus in autopsies on these cases and that the muscles were examined mainly for signs of degeneration, it is not improbable that these lesions may have at times been present and been overlooked. Certainly a very considerable proportion of the autopsies of cases of myasthenia gravis since Weigert's publication have shown conditions similar to, or analagous to, the conditions described by him. There is a much greater uniformity here than is the case in any of the previous pathological findings.

The chronicity of the disease is rather against the theory that it is caused by a lympho-sarcoma of the thymus gland with metastases, but inasmuch as the majority of the cases terminate fatally in one or two years this is not a fatal objection. A more important objection is that the thymus gland, as in Hödelmoser's[98] and in Link's[104] cases, is not always the seat of sarcoma. It may be that the primary process is an infiltration with lymphoid cells, both of the muscles and of the thymus, and that only occasionally does this give rise to a hyperplasia of the epithelial cells of the gland. Certainly the infiltration of the muscles with lymphoid cells goes far to explain the clinical symptoms of the disease while the diseased thymus may play its part in a certain proportion of cases in causing the sudden death (Thymustod).

Pathology. We are fairly well acquainted with the clinical features of myasthenia gravis, but as to its essential nature we are profoundly ignorant. The disease probably depends upon some one definite cause, but to this cause we have no clew. On the other hand, no definite and characteristic lesion has been found in all, or even in many cases, after death. For any comprehension of the disease we must, therefore, depend upon our study of the cases clinically. From such a study it is evident that the disease is purely a motor one, and that the lesion or change must be situated either in the muscles or in the peripheral or central motor neurons. The disease, even when of long duration, is not associated with mental disturbances, convulsions, or any other symptoms which would justify us in considering it a disease of the cerebral hemispheres (the central, or superior, motor neurons). It must, therefore, depend upon disturbances in the muscles, peripheral nerves or motor nuclei (peripheral or lower motor neurons). The myasthenic electrical reaction so commonly present makes it practically certain that the disturbance is in the muscles or the nerve terminations (end plates), and not in the motor nuclei; for although there is some evidence that the myasthenic reaction occurs in cerebral neurasthenia, muscular dystrophies, and in a few other conditions (Mosso[8] and Kollarits[94]), there is no evidence that this reaction occurs in nuclear lesions, nor in neuritis, except the theoretical considerations of Murri[22]. The fact noted in the body of the paper that a muscle completely exhausted both by faradism and by will power will still respond as well as ever to galvanic excitation, makes it evident that the trouble is not in the muscle fibre. The paresis in myasthenia gravis would thus seem to depend upon some alteration in the end plate of the nerve in the muscle, or upon something which comes between the end plate and the muscle fibre. The end plates were examined in the case here reported and doubtless were in other cases, but no lesion has been as yet discovered in them. It would seem, then, as if the cause of the paresis must lie in the liquor sanguinis or lymph which bathes and surrounds the muscle fibre.

It would seem as if the only reason why a muscle tires is that the waste products of its activity are not promptly enough carried away, or that oxygen and nutriment cannot be supplied in sufficient quantity; so that the tiring of a muscle is probably due to a deficiency in the circulation through it of blood, or lymph, or both. When blood is insufficiently supplied to the muscles as when the arteries are very atheromatous, no such rapid muscle tiring is present as is met with in myasthenia gravis; so that it seems as though the fault must lie in the lymph circulation. The greatest demand upon the circulation of the lymph is made when the muscle is excited to tetanic contraction by the faradic current, and under such circumstances the muscle tires most rapidly.

It is possible then to explain both the muscular weakness and the rapid muscle tiring under stimulation, both of the will and of faradism, by interference with the lymph circulation; and the only lesion which has yet been found, which has been confirmed by a number of observers, is the infiltration of the muscles with lymphoid cells, which would certainly either indicate or cause some interference with the lymph circulation.

It may be questioned whether the lymphoid infiltration is primary, due to the irritation of a toxine or some other cause, or whether it is secondary to a primary change in the lymph circulation. I should incline to the former belief. Unsatisfactory and obscure as the pathology of myasthenia gravis is, one is rather driven to the belief that the solution of the mystery lies in this infiltration of the muscles with lymphoid cells. Concerning the direct or indirect causation of this infiltration we are in ignorance, but there is evidence that this infiltration is of a very chronic nature and exists in the muscles during a long time, because Goldflam[90] found this lymphoid infiltration not only in the muscles after death, but also in a piece of muscle excised from the same patient a year before death.

Diagnosis. As is the case in other diseases, the diagnosis of typical cases of myasthenia gravis is easy; while the diagnosis of incipient and atypical cases is always difficult and often impossible. The important positive symptoms in establishing a diagnosis are (1) a chronic paresis affecting muscles supplied by many motor nerves, both spinal and cranial (ocular and bulbar); (2) rapid tiring; (3) variation in the intensity of the symptoms, and (4) the electrical myasthenic reaction. Of almost equal diagnostic importance are the negative sypmtoms: the absence (1) of fibrillation; (2) of muscular atrophy; (3) of the electrical reaction of degeneration, and (4) of sensory symptoms.

Progressive atrophic paralysis, bulbar or spinal, is easily distinguished by the presence of muscular atrophy, fibrillation and the electrical reaction of degeneration, by the steady progression, without marked variations, from paresis to complete paralysis, by the rarity of weakness of the ocular muscles as a complication, and usually by spastic symptoms in the extremities.

Pseudobulbar paralysis, whether dependent upon cerebral lesion or whether of that rarer form in which no lesion can be found after death, is usually of acute (apoplectiform) onset. Even in cases of more chronic onset, in which the disease progresses by exacerbations, the rapid tiring and the myasthenic reaction are not present, the ocular muscles are not involved and spastic symptoms are usually present in the extremities.

Myasthenia gravis can only be differentiated from ophthalmoplegia in its various forms, especially relapsing oculo-motor paralyses, by the existence of distinct symptoms of tiring, and of the electrical myasthenic reaction, and by the presence of paresis in the domain of the bulbar and spinal nerves. In early stages when the ophthalmoplegia is alone present the diagnosis is usually impossible.

Hystreia is sometimes suggested by the great variations in intensity of the symptoms. The differential diagnosis is not difficult. Ocular and bulbar paralyses and very rapid tiring are rare symptoms in hysteria, the myasthenic reaction is not found; while sensory symptoms and some of the well known "stigmata" of hysteria are usually present. Of course hysteria may be combined with myasthenia gravis, but such a combination is not common.

Prognosis. Of the tabulated cases fifty died. In fifty-seven cases the patients were only under observation during comparatively short stage of the disease. They neither died nor recovered. In seven cases the patients apparently recovered, but when it is remembered that in more than one-third of all the tabulated cases there were intervals of great improvement or even apparent recovery, lasting months or years, it is not improbable that in some of these seven cases of apparent cure, the cure was not permanent. In any event, the prognosis as regards recovery is very bad and may really be hopeless; and yet we have reason to hope and to believe that a few cases may terminate in permanent recovery. The majority of the cases terminate fatally in from one to three years. The most acute case terminated fatally in sixteen days; Widal and Marinesco[36]; while other cases continued fifteen and twenty years, presenting in their course long intermissions. It is impossible to say in any individual case whether its course will be long or short, except that the more pronounced are the bulbar symptoms the sooner, in general, will be the fatal termination.

Treatment. The therapeutics of myasthenia gravis is an affair of the future. At the present time no way is known to prevent the development of the disease, or to cure it when it has developed. A great variety of therapeutic measures, both external and internal, have been employed without success.

Most observers are agreed that the patients should have complete rest, and that their muscles should be moderately stimulated by mild galvanic currents and by gentle massage. The nutrition of the patient is always a difficult problem. The heartiest meal should be taken early in the day when the patient is least tired. Usually the food should be liquid or semi-solid, but if there is much regurgitation through the nose, solid food may be swallowed easiest. There is no drug which seems to influence the disease favorably.

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ACUTE ASCENDING PARALYSIS OF THE TYPE OF LANDRY.

WITH THE REPORT OF TWO CASES, ONE WITH AUTOPSY, THE OTHER WITH COMPLETE RECOVERY.

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In the year 1859, Landry described the following characteristic symptom complex. Perfectly healthy individuals are suddenly stricken with a flaccid paralysis of characteristic course and distribution. It may or may not be preceded by slight prodromata in the way of paræsthesia, vague pains and general malaise. The paralysis generally begins, first, in the leg, then in the course of a few hours or days passes to the leg of the opposite side and then rapidly ascends, involving, in turn, the muscles of the thighs, hips, trunk and upper extremities, and in the course of a few days or at most a week, affecting those of deglutition, articulation and respiration, terminating with marked bulbar symptoms that are soon fatal from respiratory paralysis,—all this, with perfect consciousness and without muscular atrophy. altered electrical response or disturbances of the sphincters and with negative post mortem findings. This symptom-complex has retained, ever since, the dignity of a distinct clinical entity and has been called, in honor of the distinguished observer who first described it, Landry's paralysis. Since this observation of Landry, a number of similar cases have been recorded, which, for the most part, conform to his original description but differ somewhat from it, and show that his description must be broadened so as to include certain cases of an irregular ascending type, as well as those, though exceedingly rare, that begin with bulbar symptoms and pursue a descending course. together with a milder form which differs in no wise from the original type save that it occasionally terminates in recovery.

A definition more in accord with our present conception of the disease is the following. Landry's symptom-complex is an acute infection characterized by an ascending form of motor paralysis, of a flaccid type, beginning in the lower extremities and rapidly extending to the muscles of the trunk and upper extremities and terminating with bulbar symptoms and death from respiratory or cardiac paralysis. The symptoms are usually preceded, for a variable length of time, by general malaise, various paræsthesiæ, slight blunting of the sensibility and pains in the limbs. In some rare cases, the paralysis is irregularly ascending in character or presents a reversal of the usual type, the bulbar symptoms appearing first, the disease then pursuing a descending course. The muscles usually show no tenderness, wasting or altered electrical reaction and the tendon reflexes are commonly absent. The bladder and rectum are not often involved. The temperature, though sometimes elevated, is usually normal. The spleen and lymph nodes are often enlarged. Consciousness is retained to the end. The post mortem changes, though somewhat disseminated, are chiefly confined to the peripheral motor neurons. Various bacteria have have been found either in the nervous tissue or by cultivation, but no specific micro-organism has been isolated which is constantly associated with this infection.

Much light has been shed, in recent times, in regard to the pathology of Landry's paralysis by the development of the more modern methods of histologic technique and, especially, since the introduction of the Marchi and Nissl methods of staining nervous tissue. Prior to the discovery of these exact methods, postmortem examinations were, for the most part, negative. While the pathology of Landry's paralysis still remains in considerable obscurity, most of the recent autopsies show more or less definite pathologic changes in the spinal cord, peripheral nerves and medulla oblongata.

The most constant changes found in all but a few of the recent autopsies are vascular engorgement of the vessels of the cord and membranes, with occasional minute capillary hemorrhages confined in the cord, chiefly to the ventral horns and surrounding white matter, together, in a few instances, with a small round-celled infiltration into the vessel walls and perivascular spaces. Distinct degenerative changes have been found confined, in most cases, to the ganglionic cells of the ventral horns, while in a few exceptional cases, changes of a similar kind were found in the cells of the posterior spinal ganglia. These cellular changes are of variable intensity. In some cases there exists but a mild degree of chromatolysis, while in others, cell changes are as intense as those found in recent cases of anterior poliomyelitis. Marchi degeneration often exists, confined to the ventral nerve roots, though the dorsal nerve roots have been occasionally involved. A similar, though slight, degeneration has been found in the white matter of the spinal cord. In a large number of cases, the peripheral nerves show marked degenerative changes.

The only other pathological change associated with this form of infection and found outside of the central nervous system is enlargement of the spleen and lymph nodes, and pleurisy with pulmonary infarcts and hemorrhages. A condensed summary of the changes found in the nervous system is as follows: (1) degeneration of the peripheral nerves (Barth, Dejerine, Bois, Dydy, Eisenlohr; (2) distinct changes in the ventral horns of the spinal cord (Bailey and Ewing, Marinesco, Bieke, Taylor and Clark, Worcester, Hirtz, Lesne, Wappenschmidt, Courmont and Brown, Piccinino, Rogers and Iosue); (3) in a large number of recent cases, changes both in the ventral horns and peripheral nerves, as well as slight changes both in the white matter of the ventral and lateral columns (Centanni, Eisenlohr, Pribykow, Thomas, Knapp and Thomas, Bonet, Mills and Spiller, Krewer, Schultz and Buzzard); (4) disseminated foci of inflammation in the medulla oblongata and spinal cord (Ormerod, Boinet, Courmont, Eisenlohr, Schultz, Ketli, Hlava, Gombault, and Immenman); (5) degenerative changes in the posterior nerve roots (Knapp and Thomas and Boinet); (6) Wappenschmidt found, in his case, hyaline degeneration of the blood vessels with thrombi, which he believes, with von Recklinghausen and Klebs, are due to the action of bacterial toxines; (7) two very recent cases are on record showing negative post mortem findings, namely those of Kapper and Goebel, 1900; (8) within the past decade, the following observers have reported cases of Landry's paralysis with absolutely negative post-mortem findings, Siefert, Hun, Ormerod, Prince Gerandeau and Levi, 1898.

Bacteriology.—A study of the rather extensive literature of Landry's paralysis will convince the most skeptical that the pathological changes which cause this peculiar type of paralysis, are the result of an infection due to the circulation, in the blood, of bacterial toxines, even though in many cases, the most careful bacteriologic search fails to disclose the presence of bacteria in the tissues or fluids of the body. Changes, exactly similar to those found in this disease, have been produced experimentally by the injection of pure toxines into the blood of some of the lower animals. Claude, with injections of snake poison, and Moltchanoff, with the gonococcus toxine, found degenerative changes in the ventral horn cells and, later, in the cells of the posterior spinal ganglia, together with slight degenerative changes in the white columns of the cord and in the peripheral nerves.

Buzzard, in a careful survey of the literature of this disease, collected thirty-eight cases examined bacteriologically and found twenty-five in which no bacteria were found either by staining the tissues or by cultivation, while, in the remaining thirteen, bacteria were found in the tissues and by cultivation. Baumgarten found bacilli (probably anthrax), in the blood, lymph, spleen, lungs and spinal cord, of a patient presenting the clinical syndrome of Landry.

Curschman found a pure culture of typhoid bacilli in the spinal cord from a case of this disease, without previous evidence of typhoid but with characteristic intestinal changes.

Centanni found numerous bacilli in the endo-neural lymph spaces in a case of peripheral neuritis, some meningitis and ventral horn degeneration.

Eisenlohr in a case following tuberculosis, cultivated from the nerves, spleen and other organs, two varieties of staphylococci.

Remlinger, in a case of acute ascending paralysis in a malarial patient, found streptococci in sections of the spinal cord, and grew them in a pure culture, but failed by inoculation to produce the disease. The lesions found were rupture of the axones of the ventral horn cells, dilatation of vessels of the anterior horns and cocci in the perivascular and pericellular lymph spaces.

Marie and Marinesco found a diplo-bacterium and a bacillus resembling anthrax, in the cord of a case in which softening of the ventral horns occurred.

Chantemesse and Raymond found in an epidemic form of ascending paralysis in an insane asylum, with degenerative changes in the peripheral nerves and ganglion cells of the anterior horns, a bacillus resembling, closely, the proteus of Hauser. Inoculated into rabbits, this organism produced symptoms of ascending paralysis with meningo-myelitis, at the autopsies. Inoculations of the toxines without the living bacilli, produced the same fatal ascending paralysis, with œdema and congestion of the grey matter and degenerative changes in the ventral horn cells.

Courmont and Bonne reported a case of Landry's paralysis with chromatolysis of the ventral horn cells with Marchi's degeneration of the white columns of the cord, in which a diplococcus was cultivated from the cerebro-spinal fluid and spinal cord. Inoculations into rabbits were negative.

Buzzard cites a fatal case of Landry's paralysis with degeneration of the peripheral motor neurones in which he isolated from the blood during life a micrococcus in pure culture. An organism, indistinguishable from that which was cultivated, was found in large numbers in the external part of the spinal dura of the same patient. A subdural injection of the cultivated coccus into a rabbit, produced a rapidly-spreading palsy. The same organism was discovered in the dura mater of the rabbit and isolated in pure culture from its blood.

The changes in the nervous system in both the patient and the rabbit were of the kind produced by toxines, and in neither case was the microbe to be demonstrated in the nervous structures or in the pia-arachnoid.

Symptomatology.—In a large proportion of the cases of Landry's paralysis, certain premonitory symptoms exist for a period, varying from a few days to several weeks. The most frequent of these are sensory in character and consist of numbness, tinglings, formications, and other paræsthesiæ in the feet and hands, acute pains shooting along the course of one or more of the peripheral nerves, general aching of the limbs, and muscular stiffness or pains on movement. In a few cases, numbness with anæsthesia precedes the onset of the paralysis, while in others slight motor weakness of one or more limbs occurred for several days before the paralytic invasion. Secretory and vaso-motor symptoms, such as sweating of the feet and hands, livid cold or dead extremities, are often among the earliest signs. Sometimes the disease follows or is ushered in by gastro-intestinal symptoms, such as colic, vomiting, diarrhœa or obstinate constipation.

The motor symptoms either come on abruptly or follow the above mentioned premonitory symptoms; the sensory symptoms often persist and increase in intensity. The motor weakness commonly begins in the lower limbs and one limb is often affected before the other. The paralysis as it progresses upwards, involves the muscles of the thighs and hips and, in the course of a few hours or days, affects, almost simultaneously, the muscles of the lower half of the trunk (pelvis, loins and abdomen) and those of the arms, affecting at first the fine muscular movements of the hands, then those of the forearms, arms and shoulders, the upper extremities becoming totally paralyzed. In many cases, the muscles of the extremities appear completely paralyzed and yet there remains some movement of the fingers and toes.

The paralysis, rapidly ascending, involves, in turn, the muscles of the upper half of the trunk, then those of the neck and head. The intercostals are commonly affected before the diaphragm. The muscles supplied by the cranial nerves are often involved, creating the bulbar symptoms, the usual precursors of death. The difficulty in swallowing is at first due to the paralysis of the soft palate or epiglottis. In the former condition, food regurgitates through the nose, and in the latter, it may enter the larynx. Later, complete dysphagia may occur from paralysis of the constrictors of the pharynx and the muscles of the œsophagus. Dysarthyria often results from paralysis of the lips, tongue and soft palate and sometimes complete aphonia ensues from paralysis of the vocal cords. In some cases, the facial muscles are paralyzed on one or both sides as well as the masseters and some of the external ocular muscles. All the muscles are in a condition of flaccidity, without contractures and with complete loss of tone. In certain rare cases, the paralysis does not pursue this typical ascending course but presents a reversal of that type or is erratic in distribution. In Gowers' case, the paralysis began in all four extremities at once, while in the cases of Howard and Rowden the paralysis started with bulbar symptoms and pursued a rapidly descending course.

The picture presented by a typical case of Landry's paralysis is very striking. The patient assumes an extreme dorsal decubitus, is unable to sit up, turn to one or the other side, or rotate, extend or flex the head. This, with complete flaccid paralysis of all four extremities, and with great difficulty in swallowing and articulation, marked dyspnœa from involvement of the respiratory and cardiac centers, and retention of perfect consciousness to the last, completes the sad picture of this dreaded disease.

In the rapidly fatal cases, the muscles are in a condition of flaccidity without atrophy and present normal electrical reactions. In the subacute and more chronic types of the disease, a certain amount of muscular atrophy may exist with altered electrical reactions. Such cases have been reported by Ross, Knapp, Thomas, Baumstark, Diller, Vizioli, Burghart and Nonne.

Reflexes.—The knee, wrist and elbow jerks are lost early and in fatal cases, never return. In those cases that recover, the reflexes return but not until the motor power is complete. The bladder and rectum are usually not involved, although many exceptions exist. According to Diller, in twelve of the seventy-five cases collected by Ewing, the sphincters were involved. Since this report, cases of sphincter paralysis have been observed by Goebel, Knapp, Maxwell, Baumstark, Brissaud and others.

This disease commonly runs a perfectly afebrile course, although cases are recorded with temperatures of a septic type.

Albuminuria, splenic enlargement and enlargement of the lymph nodes have been frequently observed.

According to Juston Bury about sixty per cent. of cases terminate in death before the tenth day, and rather less than forty per cent. in the course of the second, third or fourth weeks. Sometimes the disease presents such a fulminating type that a fatal result occurs in forty-eight hours.

Spiller, Soltman, Baumstark, Diller, and others, have reported cases presenting the typical clinical syndrome of Landry with recovery. One of my cases belongs to this category.

Etiology and Classification.—Three important etiological factors seem connected with most of the cases of this disease: (a) exposure to wet and cold; (b) a complication or sequel to some of the infectious diseases, as typhoid, diphtheria, la grippe, variola, measles, malaria, tuberculosis, septicæmia, syphilis, etc.; (c) an auto-intoxication from the gastro-intestinal apparatus or from disordered metabolism. A few cases are recorded where no distinct cause could be elicited. The disease affects men more frequently then women, in the proportion of three to one. It occurs most often between the ages of twenty and forty years. It is exceedingly rare in childhood, although well authenticated cases are to be found in the literature.

This form of paralysis is doubtless due to an infection, the result of the circulation through the nervous system of (bacteriologic or metabolic) toxines. This is the view long ago promulgated both by Landry and Westphal and confirmed by all subsequent observers. This view seems supported by the clinical course of the disease, the acute splenic tumor and enlargement of the lymph nodes, the pulmonary infarcts, the albuminuria, and the autopsical and bacteriological findings.

The bacteriological findings show no specific micro-organism associated with this disease, the characteristic symptoms being induced by toxines from the most diverse forms of bacteria. The poison seems to have a selective effect on the peripheral motor neurons, damaging these alone or more extensively than the other histologic elements of the spinal cord. This may be due to their natural lack of resistance or to some chemical affinity on part of the toxine for these particular anatomic units. In a few cases however, the peripheral sensory neurons as well as the white matter of the cord are affected in a similar though less extensive manner.

Much confusion still exists in regard to the proper classification of Landry's disease. Some authors, more notably Dejerine and Schmaus, cling to the old tradition that Landry's paralysis is a distinct entity and should be so classified. Others, particularly Taylor, Clark and Schwab, believe that it should not be so regarded and that the distinction rests on a highly superficial etiological, clinical and pathological basis.

Ross, Putnam, Dejerine, Barton, Walton and Krewer, would classify all cases under the head of multiple neuritis. Berhardt, Westphal and Taylor, on the contrary, believe that it is closely allied if not identical with the rapid adult form of poliomyelitis. The most recent view brought forth by Thomas and Knapp and supported by Mills and Spiller, is that Landry's paralysis is an acute parenchymatous degeneration of the peripheral motor neurons of toxic or infectious origin.

Author's First Case

Acute ascending paralysis of nine days duration; death from respiratory paralysis; autopsy. Complete degeneration of the peripheral motor neurons.

Miss A. C., aged forty-two, nurse at the Samaritan Hospital. Has had no serious illness since childhood. Never uses stimulants, habits perfect. Family history uneventful. Present illness began February 20, 1900, with headache, general malaise, nausea, colicky pains in abdomen, constipation and a sharp febrile reaction. This condition continued for several days and then gradually ceased, leaving her weak and prostrated in bed until Febraury 28; afterwards she improved rapidly.

March 4.—When attempting to walk across her room and without warning her limbs seemed heavy and suddenly gave way, she falling to the floor. After assisting her to bed, it was discovered that she could move her toes and slightly flex and extend each foot, but could not raise either from the bed. There was no soreness of the nerve trunks or muscles and no sensory disturbances.

March 5.—Her general condition is good. She is well nourished but is quite pale. Heart and lungs normal. Urine negative. Respirations 18, pulse 100 regular and full. Temperature normal. There is complete motor paralysis below the knees, save for slight ability to move toes.

March 6.—Paralysis is rapidly ascending and there is now almost complete motor paralysis of the lower extremities. The plantar reflexes and knee-jerks are lost. The most complete examination fails to elicit the slightest sensory loss. The muscles are symmetrical in size and do not appear atrophic. They are in a condition of flaccidity.

(*Continued on page* 65)

Legends for Plates Illustrating Dr. Gordinier's Article.

LARGE PHOTOMICROGRAPHS

ZEISS, 1-12 OIL IMMERSION LENS

FIG. 1.—Section of the right ulnar nerve, showing degenerated nerve fibres. The myeline is segmented and in places the segments are degenerated into small droplets. Some of the axones are swollen, while others are narrowed. Many of the myeline sheaths are empty and collapsed.

WEIGERT-PAL METHOD, × 400 D.

FIG. 2.—A ventral cornual cell from the lumbar cord showing a swollen and slightly displaced nucleus with complete destruction of the Nissl bodies and leucocytal inclusion.

FIG. 3.—A degenerated cornual cell from same region with a much swollen nucleus and very wavy nuclear envelope.

PHOTOMICROGRAPHS

ZEISS 1-12 OIL IMMERSION LENS

CELLS FROM THE LUMBAR CORD, NISSL METHOD

FIG. 4.—A normal ventral horn cell.

FIG. 5.—A ventral horn cell with normal Nissl bodies but with an excentrically placed nucleus.

FIG. 6.—A swollen ventral horn cell with marked central chromatolysis and a completely degenerated nucleus.

FIG 7.—A swollen ventral horn cell with early degeneration of the Nissl bodies and slightly displaced nucleus.

FIG. 8.—A greatly swollen ventral horn cell with deeply stained degenerated Nissl bodies, displaced nucleus and irregular nuclear envelope.

FIG. 9.—A motor cell with complete destruction of Nissl bodies and displaced atrophied nucleus.

FIG. 10.—A degenerated and slightly atrophied cell from the ventral horn, with a much swollen nucleus, and absence of nuclear membrane, resting in a dilated pericellular space.

FIG. 11.—Dilated central canal, showing (rather indistinctly) round celled infiltration.

To Illustrate Dr. Gordinier's Article on "Acute Ascending Paralysis of the Type of Landry."

Albany Medical Annals, January, 1904.

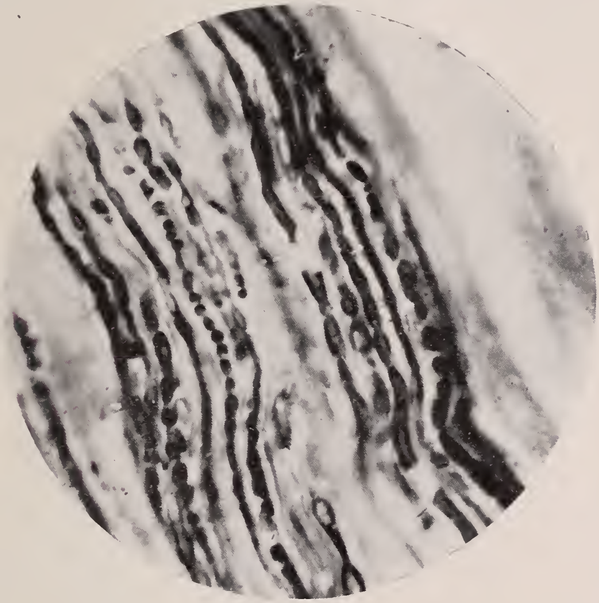

Fig. 1

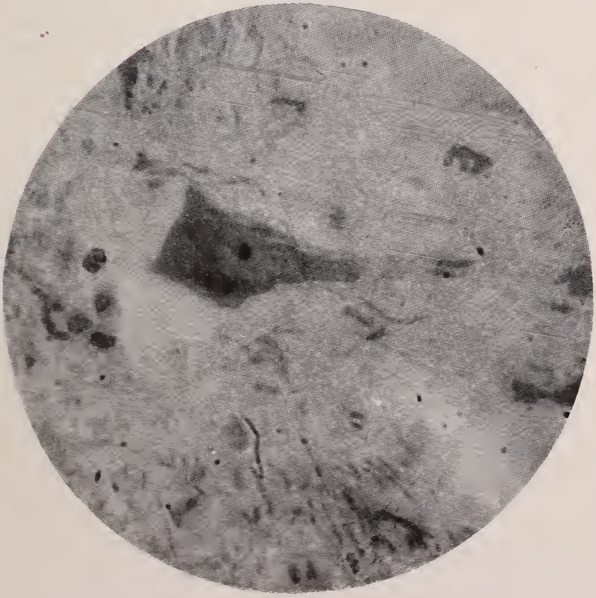

Fig. 2

To Illustrate Dr. Gordinier's Article on "Acute Ascending Paralysis of the Type of Landry."

Albany Medical Annals, January, 1904.

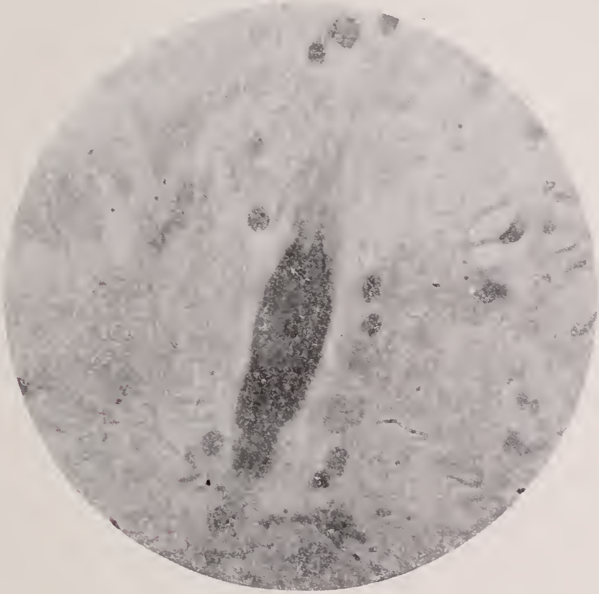

Fig. 3

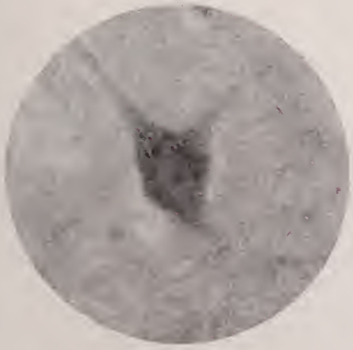

Fig. 4

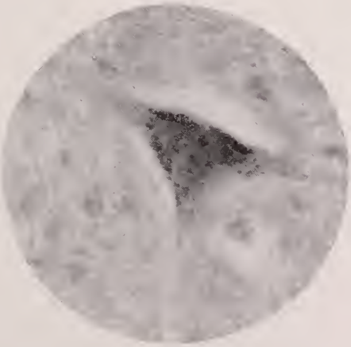

Fig. 5

March 7.—The left upper extremity is paralyzed, no movement remaining, save slight flexion and extension of the fingers. The right arm is in a condition of paresis, she can raise it but can sustain it in this position but a short time. She complained of no premonitory sensory disturbances. The sensations were all intact. Cranial nerves negative.

March 9.—Both upper extremities are in a condition of complete flaccid paralysis, only slight movement of the fingers remaining. The trunk muscles are extensively involved. The patient can no longer sit up in bed or turn to one or the other side. The respirations are becoming labored and the excursions of the diaphragm seem limited. She has perfect control over the sphincters. The bowels have been constipated from the first, an exaggeration of their normal condition. The umbilical and epigastric relexes are lost. Her mentality is normal. She is able to rotate, flex and extend the head.

March 11.—The patient is now completely paralyzed. She is no longer able even to move her head. She has difficulty in deglutition. She choked several times during the night. There is a left-sided facial paralysis of the peripheral type. The respirations are hurried and superficial. There is, apparently, no chest expansion and scarcely any protrusion of the hypochondriac. Pulse is 130, feeble and irregular. Heart sounds are feeble. There is a slight degree of cyanosis. Temperature is normal. She has perfect control over her bladder. She has a delusion that there is a cat in bed with her, otherwise she is intelligent. She answers questions correctly and seems to realize the gravity of her case. Another careful electrical examination was made and the reactions were normal. There was no sensory loss. All cutaneous and tendon reflexes were absent.

March 12.—Dyspnea very great. Is unable to swallow. Pulse 140, irregular and very feeble. Has a dry cough. Is very cyanotic. Is unable to speak above a whisper and then very indistinctly. Is very dull, mentally.

March 13.—Died suddenly at one A. M. of respiratory failure. *Autopsy* five P. M., *March 14*, confined to the spinal cord and peripheral nerves; complete examination not being permitted. The spinal cord was removed entire and showed no macroscopic changes. Sections from the ulnar, anterior crural and sciatic nerves were taken. This material was hardened in part in alcohols of increasing strength, in Mueller formol and in ten per cent. formol solutions.

The sections were stained with haematoxylin, ammonia carmine, Von Gieson's and Nissl's stain, and with Weigert's method and Pal's modification of the same. Cultures from the subdural and subarachnoid spaces and from the substance of the cord remained sterile. Sections of the cord examined for bacteria were negative. Sections from several muscles showed no pathological change.

The membranes of the cord were normal. The small blood vessels of the spinal gray throughout the entire cord were dilated. This change was most evident in the ventral horns of the cervical and lumbar regions. Many of the vessels of the central horns and intermediate gray matter showed small thrombi. No changes in the vascular walls were present and no perivascular round-celled infiltration or capillary hemorrhages were present. In sections stained with Weigert's and Pal's method, no changes were observed in the white columns. The dorsal ganglion cells and the dorsal and ventral roots were normal. The cell groups of Clark's column were practically normal. A few cells showed slight chromatolysis. The central canal, throughout the cervical, dorsal and lumbar regions was slightly dilated and present about it a well defined round-celled infiltration.

The ventral horn cells, throughout the entire cord, showed distinct degenerative changes. These changes were most marked in the lumbar and cervical regions. Most of the cells were swollen, contained excentrically placed nuclei and showed a central or peripheral chromatolysis or both combined. Many cells possessed nuclei greatly swollen, irregularly shaped, and whose chromatin network was deeply stained or very granular and pale. The nuclear envelopes were often indented and sometimes absent. In some cells nothing remained to show the position of the nucleus save the presence of an intensely stained nucleolus.

Numerous cells were found with complete pulverization of the Nissl bodies and absence of their nuclei. Some of these degenerated cells rested in dilated pericellular spaces. The dendrites showed no particular change except, in many instances, an absence or paucity of the Nissl bodies. A few of the cells showed leucocytal inclusions. The normal pigment of most of the cells was increased. There was no apparent diminution in number of the ventral horn cells. The intracornual nerve network appeared normal.

The peripheral nerves examined showed degenerative changes. These changes were most distinct in the anterior crural and ulnar nerves, and least so in the sciatics. The changes were characteristic of acute parenchymatous degeneration rather than of the Wallerian type. The myelin sheaths of many nerve fibres were swollen, presenting in their course globose, or fusiform dilatations variable in size. The myelin was markedly segmented, some fibres containing rather large segments while in others the myeline was broken up into small droplets or was degenerated into fine granules. Many of the myelin sheaths were empty and collapsed about the axis cylinders. The nuclei of the myelin sheaths were proliferated and there was, in many places, a distinct round celled infiltration between the individual nerve fibers. It was difficult to be positive of the condition of the axones so many fibers showed degenerative changes in the myelin, the sheaths being filled with fat drops or granules, that it was often impossible to discern the axon. Some of the axones appeared atrophied and others were interrupted in their course.

Author's Second Case

A case of acute ascending paralysis of the type of Landry with recovery.

Mr. A., aged thirty-eight, married, occupation butcher, drinks moderately. Had typhoid fever several years ago. Otherwise he has had good health. Present illness began October 6, 1901, with fever, chilly sensations, general pains and aches, headache and pains in the elbow and shoulder joints. I made a diagnosis of la grippe and prescribed accordingly.

October 8.—Seems much improved, has some muscular soreness, but no pains, has a diffuse bronchitis, temperature 101°, pulse 100, regular and strong.

October 10.—His wife stated that the previous night, she noticed he could move his legs only with great effort and could not turn in bed. I found him quite delirious, with almost total paralysis of the lower extremities and weakness of the arms. His complexion was dusky. Respirations were rapid, thirty per minute, and labored. The neck was not rigid and the head could be moved in all directions. The pupils were equal and reacted normally. The eyeball movements were not restricted. The facial muscles were symmetrical and the tongue protruded straight. He was unable to arise to a sitting posture and could not move to either side.

October 11.—His arms rested quietly at his sides in a position of adduction with slight flexion of the forearms. He could not turn to either side or sit semi-erect in bed. He was able to flex the left forearm but otherwise motion was completely lost in each member. All motion was lost in the lower extremities save a slight ability to flex and extend the toes of each foot. There was double foot-drop. The feet were mottled and purplish but there was no œdema. All sensations were intact. The deep and superficial reflexes were lost. He had complete control over the sphincters. There was no muscle or nerve tenderness. The muscles were flabby but there was no apparent muscular wasting. Diaphragm movements were normal. He had a low muttering delirium.

October 12.—Condition the same as above. Is unable to move in bed, the only movements remaining are those of the head. The cranial nerves are intact. Temperature 103°, respirations forty. The delirium continues and he has passed urine involuntarily. He sweats profusely, drenching the bed clothes. The urine is very high colored, sp. gr., 1.024, contains a trace of albumen.

October 13.—Morphia, one-half grain and bromidia two drachms were given and he had a good night. Is less delirious, seems brighter and has taken considerable nourishment. Can flex feet on legs slightly. Temperature 103.6°, pulse 120. Heart and lungs normal.

October 14.—Morning temperature 103°, pulse 100, respirations thirty-eight. Complains of numbness in fingers and toes. No ataxia. Sensations intact. No muscle or nerve tenderness. Electrical reactions normal. Cranial nerves intact. Delirium has almost ceased, controls bladder and rectum. Is unable to move in bed but is able to move his fingers slightly and moves feet a little better but cannot raise the legs from the bed or separate them from each other. Diaphragm movements normal. No bulbar symptoms.

October 20.—Patient is much improved, is able to raise feet slightly from level of the bed, moves fingers and toes and freely flexes and extends the hands. Reflexes are absent. Temperature 100°, pulse eighty, respirations twenty-six.

November 1.—Temperature and pulse normal. Heart sounds feeble. Can draw legs up. Moves feet well and can "ab" and adduct legs and flex and extend thighs but can elevate them from the bed but slightly. Foot-drop still present. Movements of the upper extremities rapidly improving. Hand movements almost normal. Can flex and extend forearms. Arm movements still restricted. Patient is still unable to turn to either side or to sit semi-erect. Electrical reactions normal. Sensations carefully tested and found normal.

December 1.—Patient is able to stand and take a few steps. Moves arms fairly well but is unable to bring them to a right angle with the body. Sensations normal. Muscles are still flabby but do not appear atrophied. Electrical reactions normal. Patelar reflexes present. Improvement was now rapid and he resumed his duties at the market about January 15.

The first case herein reported is interesting because of the very rapid ascending type of the motor paralysis terminating fatally with bulbar symptoms, nine days after the onset; the complete absence of sensory symptoms preceding or occurring during the course of the disease; the previous history of an intestinal auto-intoxication which occurred two weeks prior to the onset of the paralysis; and the anatomical findings, indicating a primary degeneration of the peripheral motor neurons.

The second case was one of those rare forms of acute ascending paralysis of the type of Landry with recovery. The interesting features of the case were the mode of onset, doubtless following an acute infection possibly la grippe; the invasion in a rapidly ascending manner of the muscles of the extremities and trunk; the absence of bulbar or sensory symptoms and the complete restoration to function, in about eight weeks, of all the paralyzed muscles without muscular atrophy or altered electrical reactions. The rapidly ascending course of the paralysis without nerve or muscular tenderness and without muscular atrophy or electrical changes would exclude, in this case, both multiple neuritis or the acute adult form of polio-myelitis. The question of the advisability of dropping from our nomenclature the term Landry's paralysis is still debatable. I must confess, from a careful survey of the literature of this subject and that of polio-myelitis and multiple neuritis, that we still have a definite group of cases such as have been portrayed in this paper presenting symptoms identical or slightly at variance with Landry's original description which cannot be relegated either on clinical or pathological evidence to the adult form of polio-myelitis or multiple neuritis. I believe therefore with Diller, that the term Landry's paralysis cannot be dropped, not only because of its long usage, but because by its use we include a group of cases which stand midway between poliomyelitis and multiple neuritis, which cases show definite but slight changes by our newer methods of research confined for the most part to the ventral motor neurons and doubtless due to the circulation in the blood of microbic or metabolic toxins.

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A CONSIDERATION OF THE EFFICACY OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

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This consideration of the efficacy of the use of antitoxin as a remedial measure for diphtheria is based upon a study of 1,182 cases of diphtheria, reported to the Department of Health, of the City of Albany, N. Y., since the 1st of January, 1901.

The original investigations of Behring, Roux and Aronson, proving the potency of the use of antitoxin for the cure of diphtheria, were made about the years 1891 and 1892.

During the year 1894, public confidence had been sufficiently established and favorable experimental results in a sufficient number of cases obtained, to warrant the production of the antitoxin for commercial purposes. At this early time the strength of the various preparations was extremely uncertain and the dosage largely a matter of uncertainty or experimentation. Following the standardization of the antitoxin and the adoption of a universal unit, together with an improved technique in the manipulation of the animals employed in its production and the laboratory methods chosen for its elaboration, antitoxin began to be occasionally used on the human subject with confidence. With the concentration of the effective constituents of the antitoxin in a minimum quantity of serum, and the improvement in other ways in the quality of the antitoxin administered, came the practical disappearance of the various skin and other phenomena associated with the introduction of this remedial measure. The then local Board of Health, which had been acting under authority of the laws of 1885, and which was continued from January 1st, 1900, as a Department of Health, under the direction of a Commissioner of Public Safety, by the Charter of 1899, provided a small amount of antitoxin for public use during the years 1896, 1897 and 1898. In the year 1896, forty-three packages were furnished the public; in the year 1897, one package, and in the year 1898, five packages. In the year 1899, a regular appropriation of a small amount of money was made for the purchase of antitoxin for public use among the afflicted poor during the year 1900. A like appropriation has been regularly granted every year since that time. On the 1st of January, 1901, the Health Department began to gather such data, the accumulation of which, it was thought, might eventually furnish, and in the issue has proved to have furnished, valuable information concerning the efficacy of the use of antitoxin in diphtheria cases in this city. An effort has been made since that time to collect in a systematic way, from the number of cases, both public and private, of diphtheria reported to the Department, those cases in which antitoxin had or had not been used and the result of such use. In case of death from diphtheria, either with or without the use of antitoxin, an endeavor has been made to ascertain the length of time that the child had been sick, and, in those cases in which antitoxin had been given, the interval between the invasion of the disease and the first dose of antitoxin. Like all statistics of this kind there is and must be a limit to the information to be obtained. But a collective system of investigation, such as that carried on by the Department of Health of Albany since the beginning of 1901, gives at least some valuable practical information.

The cases used in this study have been collected as practical cases, representing the general treatment by antitoxin as now used by the profession. They are not hospital cases or controlled cases exclusively, but include neglected and uncontrolled cases, securing the services of a Health Physician sometimes at the last moment. The result of the study appears to be more valuable on that account.

It will be noticed that no attempt has been made to ascertain the number of antitoxin units administered in each case. The effective dose of antitoxin is so variable that it has been thought wiser to assume that the physician has brought an intelligent conception of the case to bear upon his treatment and has used such a quantity of antitoxin, large or small, as the necessities of his case required. It is now a well established fact that in most cases of diphtheria moderate doses of antitoxin will accomplish a curative purpose, while in some severer cases, with either prompt or delayed injection of this remedy, owing to the seriousness of the invasion, complicated or not with mixed infections, no amount of antitoxin, however great, will avert a fatal issue. The question of quantity of dosage has been, therefore, eliminated from consideration.

This study then represents the result of antitoxin treatment for diphtheria as usually administered by the profession in this city.

A table follows, giving by months, since the 1st of January, 1901, with the exception of the month of December, 1903, the number of cases of diphtheria reported to the Department of Health in this city; the number of these cases in which antitoxin had been used; the number of these cases in which antitoxin had not been used; the total deaths from diphtheria; the total number of deaths from all causes; the number of fatal cases in which antitoxin had been used, and the number of fatal cases in which antitoxin had not been used. The tables also give the totals in each of these classes by years and the grand totals for the three years.

TABLE A

	Diphtheria reported.			Diphtheria deaths.			
	Total cases	Antitoxin used	Antitoxin not used	Total deaths	Antitoxin used	Antitoxin not used	Deaths from all causes
January	58	49	9	8	1	7	188
February	75	67	8	4	1	3	158
March	56	55	1	2	0	2	164
April	74	71	3	4	2	2	157
May	32	30	2	1	0	1	139
June	27	26	1	0	0	0	155
July	10	8	2	1	0	1	142
August	27	22	5	2	1	1	136
September	43	37	6	3	1	2	139
October	89	65	24	6	5	1	126
November	90	49	41	9	4	5	124
December	51	37	14	5	3	2	138
Totals	632	516	116	45	18	27	1766
1902							
January	46	38	8	3	1	2	141
February	27	21	6	2	1	1	148
March	8	7	11	1	1	0	121
April	29	18	11	0	0	0	136
May	23	20	3	5	3	2	166
June	22	21	1	0	0	0	102
July	16	12	4	1	1	0	135
August	20	18	2	2	2	0	127
September	33	26	8	1	0	1	119
October	59	53	6	4	4	0	136
November	48	40	8	2	2	0	156
December	25	23	2	4	3	1	139
Totals	356	297	59	25	18	7	1626
1903							
January	14	10	4	0	0	0	153
February	14	14	0	0	0	0	156
March	11	7	4	2	2	0	175
April	22	22	0	2	2	0	169
May	23	19	4	3	2	1	152
June	11	11	0	1	1	0	119
July	13	12	1	0	0	0	177
August	10	8	2	1	1	0	148
September	21	21	0	1	1	0	140
October	24	19	5	1	1	0	137
November	31	24	7	3	3	0	145
Totals	194	167	27	14	13	1	1701
Grand Totals for 1901, 1902, 1903	1182	980	202	84	49	35	5093

A proportional study of the data given on the preceding page furnishes many interesting facts.

First: The proportional deaths from diphtheria and the total number of deaths from all causes has remarkably declined during the period included in the table. In the year 1901, there were forty-five deaths from diphtheria in a total number of deaths from all causes of 1,766, or 2.6 per cent.; in 1902, there were twenty-five deaths from diphtheria out of a total number of deaths from all causes of 1,626, or 1.5 per cent.; for the eleven months of 1903, there were fourteen deaths from diphtheria out of a total number of deaths from all causes of 1,701, or a proportion of .82 per cent. It is thus seen that the percentage of diphtheria deaths of 2.6 per cent. during the year 1901, diminished to 1.5 per cent. in 1902 and to .82 per cent. in 1903. Considering the whole number of cases for the three years, there were eighty-four deaths from diphtheria out of a total of deaths from all causes of 5,093, making an average of 1.6 per cent. of diphtheria deaths to all deaths. Nothing could show more satisfactorily the influence of some potent remedy in averting death from diphtheria than the figures above quoted.

Second: When we consider the total number of diphtheria deaths to the total number of cases of diphtheria reported, we are somewhat astonished at the fact that there has been practically no change in the death rate, which remains substantially at seven per cent. In the year 1901, there were 632 cases of diphtheria reported with forty-five deaths, or an average of 7.1 per cent.; during the year 1902, there were 356 cases of diphtheria reported with twenty-five deaths, or an average of seven per cent., and during the eleven months of 1903, there were 167 cases of the same disease reported with fourteen deaths, or an average of 7.2 per cent. For the three years, out of 1,182 cases of diphtheria reported, there were eighty-four deaths, or an average of 7.1 per cent. It is to be remembered in this connection that these are not selected cases or cases controlled in some institution, but are practical cases among all classes of people and under all social conditions. It includes the neglected cases advancing rapidly to death without antitoxin as well as fulminant cases in which antitoxin had been given under the most favorable surroundings.

Third: The relation of the cases in which antitoxin had been given to the total diphtheria cases reported shows a satisfactory increase in the frequency of the use of antitoxin, during the three years. In the year 1901, antitoxin had been given in 516 diphtheria cases out of a total of 632 cases reported, or a percentage of 81.6 per cent.; in 1902, there were 297 cases of diphtheria in which antitoxin had been given out of a total of 356 cases reported, or a percentage of 83.5 per cent.; in 1903, there were 167 cases of diphtheria in which antitoxin had been given out of a total of 194 cases reported, or an average of eighty-six per cent. During the three years, 980 cases had the benefit of this protective measure out of a total of 1,182 cases of diphtheria reported, or a general average of eighty-three per cent. Conversely, during the year 1901, there were 116 cases of diphtheria which did not have the benefit of antitoxin out of a total of 632 cases reported, or an average of 18.4 per cent.; during the year 1902, there were fifty-nine cases of diphtheria which did not have the benefit of antitoxin out of a total of 356 cases reported, or a percentage of 16.5 per cent ; during the year 1903, there were twenty-seven cases of diphtheria out of a total of 194 cases reported, or an average of 13.9 per cent. For all cases of diphtheria reported during the three years, 202 out of a total of 1,182 did not have the benefit of the use of antitoxin, or a general average of seventeen per cent. It will thus be seen that there has been a general increase in the total number of cases which have had the benefit of antitoxin injection. Thus, in 1901, there were eighty-one per cent. of the cases reported in which antitoxin had been used; in 1902, 83.5 per cent; in 1903, eighty-six per cent, and conversely, there had been a diminution in the cases which had not the benefit of antitoxin, from eighteen per cent. to about fourteen per cent. in 1903. A number of reasons might be advanced in explanation of these figures. In view of the general adoption of antitoxin as a remedy for diphtheria by the medical profession of Albany, and particularly so during this last passing year, it seems a warranted assumption, from these and following figures, to say that about eighty-six per cent. of all cases of diphtheria require protective inoculation, while the balance of the cases have been of so mild a type of infection as to justify the physician in withholding antitoxin.

Fourth: It may be interesting in passing to consider the proportion of antitoxin cases reported to the total number of diphtheria deaths. It is, however, the relation of antitoxin cases to antitoxin deaths that will interest us most in this connection. In 1901, there were 516 cases of diphtheria reported, in which antitoxin had been given and a total of forty-five deaths from diphtheria, or an average of 8.7 per cent.; in 1902, there were 297 cases of diphtheria reported in which antitoxin had been given and a total of twenty-five deaths, or an average of 8.4 per cent; in 1903, there were 167 cases of diphtheria reported in which antitoxin had been given with a total of fourteen deaths, or a percentage of 8.4 per cent. The total for three years of 980 cases of diphtheria reported in which antitoxin had been used, with the total number of eighty-four deaths, makes a general average of 8.5 per cent. The influence of antitoxin is thus seen to be remarkably constant, so far as the apparent influence of antitoxin on the total death rate is concerned. Conversely, the cases in which antitoxin had not been used in proportion to the total number of deaths increases remarkably in three years. In 1901, there were 116 cases of diphtheria reported in which antitoxin had not been used and forty-five deaths, or a proportion of 38.5 per cent.; in 1902, there were fifty-nine cases of diphtheria reported in which antitoxin had not been used with a total of twenty-five deaths, or a rate of 42.4 per cent; in 1903, there were twenty-seven cases in which antitoxin had not been used with a total of fourteen deaths, or a percentage of 51.8 per cent. There had been, during the three years, 202 cases of diphtheria reported in which antitoxin had not been used and eighty-four deaths, or an average of 41.5 per cent.

The cases in which antitoxin had been given is thus seen to furnish about 8.5 per cent. of the total deaths from diphtheria, while the cases in which antitoxin had not been given furnished an increasing proportion of the total deaths during the three years.

Fifth: The most interesting feature of this study, as well as a most startling fact, comes from the consideration of the efficacy of antitoxin in diminishing the death rate from diphtheria. In the year 1901, there were 516 cases of diphtheria reported which had been given the benefit of antitoxin inoculation with eighteen deaths, or a percentage of 3.4 per cent.; in 1902, there were 297 cases of diphtheria reported in which antitoxin had been given and eighteen deaths, or a percentage of six per cent.; in 1903, there were 167 cases reported in which antitoxin had been given with thirteen deaths, or a percentage of 7.7 per cent. For the entire three years, there had been 980 cases of diphtheria reported in which antitoxin had been used with forty-nine deaths, or a percentage of five per cent. This increase in the percentage of deaths, after the use of antitoxin, can only be explained on the basis of the universal use of antitoxin in all severe cases, giving the benefit to every case, no matter how extreme, of this protecting agent. No case is now considered hopeless.

During the year 1901, there had been 116 cases of diphtheria reported in which antitoxin had not been used and twenty-seven deaths, or a death percentage of 23.3 per cent.; in 1902, there had been fifty-nine cases of diphtheria reported in which antitoxin had not been used with seven deaths, or a percentage of twelve; in the year 1903, there were twenty-seven cases of diphtheria reported in which antitoxin had not been used and one death, or a percentage of 3.4 per cent. During the three years, there had been 202 cases of diphtheria reported in which antitoxin had not been used and thirty-five deaths, or a general average of seventeen per cent. To one not familiar with statistics of this character, and the whole situation, it would seem as if the advantage rested with those cases in which antitoxin had not been used. There has been an apparent reduction in the mortality in non-antitoxin cases since 1901. This is in no sense to be construed into an argument against the efficacy of diphtheria antitoxin. The explanation is not difficult to make.

As the use of antitoxin has increased and the medical profession has become more familiar with the class of cases in which its use is efficacious, and those in which it is not necessary, a large proportion of the mild cases do not now receive the benefit of inoculation, and consequently, the group of cases in which antitoxin is not now given is made up, largely or altogether, of mild cases where formerly this group included severe unprotected cases in articulo mortis and cases unprotected by antitoxin by physicians who did not believe in its efficacy. The death rate among these mild cases is now very small, while the moderately severe and fulminant cases receive the benefit of antitoxin, whether or not there is secondary infection, and, as a routine procedure, many mild cases also, with a consequently large death rate for the entire group. A few years ago, the very desperate cases were many times abandoned as unsuitable for the use of the injection, and at the same time many physicians had not yet established their confidence in the remedy. Now, every doubtful case is given the benefit of antitoxin, with a proportionate increase in the deaths after its use. If one thing more than another is proved from a study of the cases here gathered together, it is that not only has the use of antitoxin increased but its efficacy has been shown in a remarkable degree in diminishing the death rate. The first study of the tables included in this paper abundantly proves these facts.

For the three years, there has been a saving of twelve lives in every hundred, due to the use of antitoxin, that is, of every hundred cases of diphtheria occurring in the city during the last three years in which antitoxin had not been administered, twelve more deaths occurred than in a series of one hundred cases in which antitoxin had been given. Out of a total of 1,182 cases of diphtheria reported, antitoxin has saved 141 lives. The question of the additional lives saved through the prophylactic use of antitoxin does not enter into consideration in this paper.

Sixth: The sixth study is but a corollary of the fifth, and shows that the total deaths after the use of antitoxin to the total diphtheria deaths was forty per cent. in 1901, seventy-two per cent. in 1902, and ninety-three per cent. in 1903, while the deaths in those cases in which antitoxin had not been given to the total deaths was sixty per cent. in 1901, twenty-eight per cent. in 1902, and seven per cent. in 1903. Both the fifth and the sixth study go to show that there is a greater intelligence in the use of antitoxin on the part of the profession.

The table showing these figures is as follows:

TABLE B

	1901	1902	1903	Total
Deaths from diphtheria to total deaths	2.6%	1.5%	.82%	1.6%
Total diphtheria deaths to total diphtheria cases	7.1	7.0	7.2	7.1

	1901	1902	1903	Total
Total antitoxin cases to total diphtheria cases	81.6	83.5	86.7	83.0
Total non-antitoxin cases to total diphtheria cases	18.4	16.5	13.9	17.0
Antitoxin cases to total diphtheria deaths	8.7	8.4	8.4	8.5
Total non-antitoxin cases to total diphtheria deaths	38.7	42.4	51.8	41.5
Antitoxin cases to antitoxin deaths	3.4	6.0	7.7	5.0
Non-antitoxin cases to non-antitoxin deaths	23.3	12.0	3.4	17.0
Deaths after use of antitoxin to total diphtheria deaths	40.0	72.0	93.0	58.3
Deaths after non-use of antitoxin to total diphtheria deaths	60.0	28.0	7.0	41.6

DEATHS AFTER THE USE OF ANTITOXIN.

The following table shows the deaths from diphtheria after the use of antitoxin. These figures are taken from the certificates of death furnished by the physicians. The length of sickness means from the first day of the doctor's attendance to the dates of death.

TABLE C

AGE.	SEX.	ANTITOXIN USED.	LENGTH OF SICKNESS.
From Sept., 1901			
7 years 6 months	Male	Third day	13 days
10 months	Male	Five hours before death	1 day
5 years	Female	Two hours before death	5 days
7 years 5 months	Female	Fourth day	6 days
6 years 1 month	Male	Ten minutes before death	7 days
7 years 1 month	Female	One day before death	7 days
5 months	Male	One day before death	7 days
3 years 5 months	Female	Shortly before death	5 days
4 years	Female	Three hours before death	Neglected case
5 years	Female	Third day	5 days
5 years	Female	Twelve hours before death	4 days
5 years	Female	Used early	5 days
1902			
2 years 7 months	Male	Fifth day	6 days
1 year 9 months	Male	Second day	37 days
1 year	Female	Second day	4 days
9 years	Female	Used early	10 days
12 years	Female	Fourth day	Died of Bright's disease, 6th week.

Age.	Sex.	Antitoxin Used.	Length of Sickness.
1 year 4 months	Male	Second day	3 days
2 years 11 months	Female	Third day	9 days
6 years 3 months	Male	One hour before death	5 days
4 years 8 months	Male	Fifth day	6 days
2 years	Male	Third day	4 days
6 years 6 months	Male	Third or fourth day	5 days
10 years	Female	Fourth day	8 days
2 years 7 months	Male	Third day	8 days
2 years 1 month	Female	Six hours before death	3 days
7 years 3 months	Male	Seventh day	7 days
3 years	Female	Shortly before death	14 days
To Dec. 1, 1903			
2 years 11 months	Male	Fourteen hours before death	3 days
2 years 11 months	Male	Unknown when	
2 years	Female	Third day	5 days
3 years 11 months	Female	Nine hours before death	4 days
2 years 4 months	Male	Used early	17 days
7 years 8 months	Female	Unknown when	17 days
2 years 11 months	Female	Two hours before death	2 days
8 years 9 months	Male	Third day	14 days
11 months	Male	One hour before death	3 days
50 years	Female	Third day Died of consumption.	3 days
3 years 9 months	Female	Fourth day	5 days
2 years 2 months	Female	Shortly before death	1 day
27 years	Male	Sixth day Died of oedema of glottis.	6 days

There have been forty-nine deaths in all after the use of antitoxin during the three years. The oldest child was twelve years of age, and the youngest ten months. The case reported as fifty years of age is to be discredited from the fact that tuberculosis, rather than diphtheria, caused the death of this patient, and also the case of the male twenty-seven years of age, who died of oedema of the glottis, should be excluded from consideration.

One of the children was ten years of age, one nine years, one eight years, five seven years, three six years, four five years, one four years, four three years, eleven two years, three one year, and three under one year of age. The deaths were distributed nearly equally between the two sexes. Out of the entire number of deaths, in but three cases had the antitoxin been used early. In one case the child died on the fifth day, in another case on the seventeenth day, and in the other on the tenth day. In fourteen of the cases, which comprises the greater number, antitoxin had been used shortly before death. "Shortly before death" means but a few hours. In most cases the antitoxin had been used as a last resort. It is rather difficult to determine just how long the children had been sick in these cases. In most of them the physician had been called almost at the last moment. Two died after one day's attendance, one after two days' attendance, three after three days' attendance, two after four days' attendance, four after five days' attendance, one after seven days' attendance, one after ten days' attendance, one after fourteen days' attendance, and one neglected case of which the data is uncertain. There have been two cases in which it was unknown just when the antitoxin had been given, one of them dying on the seventeenth day, with no record in the case of the other. In the remaining cases the antitoxin had been given on the second day of attendance in three cases; one child dying on the thirty-seventh day, in another on the fourth day, and in the other on the third day. In eight cases, the antitoxin had been given on the third day; two patients dying eleven days later, one six days later, one one day later, three two days later, one five days later. In four cases the antitoxin had been given on the fourth day of attendance; one case dying two days later, one case four days later and two cases one day later. In two cases antitoxin had been given on the fifth day of attendance, both dying on the next day. In one case the antitoxin had been given on the sixth day, the patient dying the same day, and in one case antitoxin had been given on the seventh day, the patient dying on the same day.

The uncertainty of the invasion of the disease renders these statistics of small comparative value. The only thing that is emphasized in a general way is the fact that antitoxin had been given late in the disease, with the exception of three cases in which antitoxin was used early.

DEATHS WITHOUT THE USE OF ANTITOXIN.

The total number of deaths from diphtheria in those cases in which antitoxin had not been used, as follows:

TABLE D.

AGE.	SEX.	LENGTH OF SICKNESS.
From Sept., 1901.		
4 years 10 months	Female	Child died three weeks after fumigation for diphtheria, from paralysis of throat.
1 year 11 months	Female	2 days. (Died from septic poisoning.)
2 years	Female	4 days.
2 years	Male	3 days.
17 months	Female	4 days.
2 years 9 months	Female	1 day.
7 years	Male	? Neglected case.
13 months	Female	? Neglected case.
9 years	Female	10 days.
6 years	Male	1 day.
1902		
3 years 5 months	Male	11 days.
4 years	Male	7 days.
19 years	Female	7 days.
6 years	Male	11 days.
6 years	Female	8 days.
4 years 10 months	Male	5 days.
2 years 7 months	Male	3 days.
1903		
5 months	Male	3 days.

Not much, however, of practical interest can be obtained from this table.

CONCLUSION.

To sum up these statistical tables, these facts seem to be emphasized:

First, that the use of antitoxin is increasing and is generally accepted as a valuable therapeutic agent by the medical profession.

Second, that the medical profession is using mature judgment in the selection of cases for the use of antitoxin, the milder cases being permitted to go on to recovery without the use of antitoxin, and the more severe cases, including the mixed infections, are given the benefit of protective inoculation.

Third, that the use of antitoxin has decidedly diminished the death rate and saved many lives.

NERVOUS DYSPEPSIA.

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The tendency of modern medicine, from the development of pathological science and the investigations of physiological chemistry, has been to more clearly define organic and functional lesions and to illuminate that obscure borderland which lies between the mental and the physical.

"Nervous" is no longer accepted as an explanation of conditions which we do not take the time and care to differentiate more definitely. The result has been that the domain of the neuroses is being gradually contracted and the term is now only applicable, when after a most searching examination, no organic basis for the condition is discoverable.

Although science is gradually contracting the borders of the functional diseases, present day life with its struggles, rivalries, ambitions, and strenuousness is increasing to a tremendous extent the number of such patients and making the recognition of their condition a matter of vital concern to every physician. No organ of the body is probably so susceptible to mental impressions, physical conditions and general surroundings as is the stomach and no function more easily thrown out of gear than that of digestion. Our term hypochondriasis probably arises from the close association of nervous symptoms and digestive disturbance. Every one has probably had personal experience of how the digestive function might be more or less completely disturbed, even in a state of health, by anxiety, fear, shock or other strong emotion while the appetite may entirely disappear under the influence of a disagreeable odor, a disgusting sight or even an unpleasant memory.

Nervous dyspepsia is a functional disorder of the stomach which has become the most common of gastric diseases and with its protean-form may imitate, often times successfully, any organic disease.

Leube in 1879 first attempted to accurately differentiate the nervous dyspepsias from catarrh of the stomach by the determination of the gastric motility. If the stomach was found to be empty in a given time—seven hours—after a test meal, the condition was denominated a nervous dyspepsia. Not long after this when the value of chemical examinations of gastric contents was recognized. the presence of a normal secretion was added to normal motility and these two were regarded as the determining factors in nervous dyspepsia.

It was very soon recognized, however, that cases of nervous dyspepsia were not so easily diagnosticated—*i. e.,* by the determination of normal secretion and unchanged motility, but that many showed the greatest variations in their gastric secretions ranging from total anacidity, through diminished acidity to markedly increased acidity and that even the same case at different examinations might exhibit all these variations. Some of these patients, too, suffer from disturbances of motility due to weakness, resulting from diminished consumption of food on account of the distress which the ingestion of food induces. They therefore present sensory, secretory or motor disturbances separately or collectively, spasmodically and in every possible combination and variation.

The question has also arisen if nervous dyspepsia is a disease *per se* or only one of the manifestations of neurasthenia. While the great majority of the patients have general neurasthenic symptoms, there are some in whom the gastric symptoms seem to overshadow everything else although the nervous predisposition is always present.

The development of this condition is simple. A mentally overstrained professional or business man cannot distract his thoughts from his daily work and has ever present with him his worries and anxieties. Even while he eats his mind is filled with plans and his thoughts are upon his work. The same is true of many of the modern society women who are either nervously exhausted with domestic cares or engulfed in the maelstrom of petty and enervating social dissipation. This continued inattention to the act of eating prepares the way for digestive disturbances with all their consequences. Instinct has taught that food should be eaten with interest and enjoyment and it is a well recognized fact that the true appetite first occurs with eating.

The brilliant work of Pawlow and his associates explains, scientifically, many facts which, though coinciding with common experience, had heretofore been unintelligible. Experiments upon animals prove that the activity of the salivary glands begins even before the introduction of food into the mouth; that the sight or even the thought of food is sufficient to cause a flow of saliva, confirming the appropriateness of the old and well-known expression "to make one's mouth water." It was also shown that everything introduced into the mouth influences reflexly the salivary glands although there are marked differences which seem "purposive." The secretion of the gastric juice is, however, strikingly different. No matter what the irritant may be which induces an abundant secretion of saliva, this has no effect upon the gastric glands. Pieces of sponge or small stones which were chewed, gnawed or swallowed had no influence. These experiments were repeatedly made upon a dog with gastric fistula whose œsophagus had been divided so that the mouth is cut off from all communication with the cavity of the stomach. When food is given to the same animal, gastric juice makes its appearance at the end of five minutes and more than fifteen cubic centimetres of gastric juice is secreted in the next five minutes.

It is therefore neither the chemical nor mechanical stimulation of the buccal mucous membrane which is responsible for the gastric secretion, but the eager desire for food and the feeling of satisfaction and contentment derived from its enjoyment. If preparations for a meal are made within the sight of a dog and he is teased by passing the food in front of his nose, precisely five minutes later the first drop of gastric secretion appears and after some minutes it amounts to a considerable quantity. The appetite is therefore the first and mightiest exciter of the secretory nerves of the stomach. A good appetite is equivalent to a vigorous secretion of the strongest juice; where there is no appetite the juice is also absent.

Under conditions of worry and anxiety there is no appetite-secretion or at most very little. The secretory activity comes slowly into play. Food remains longer than necessary in the stomach and often undergoes decomposition which irritates the mucous membrane and often brings it into a condition of disease. The distress ensuing shortly after the ingestion of food restrains the patient from taking sufficient food. This decrease in nourishment diminishes the appetite, induces loss in weight, increases the nervous irritability and intensifies the gastric symptoms. The latter lead to a still greater limitation in nourishment. Coincident with this general loss in weight and strength, the muscles of the stomach become weaker, producing a gastric atony. As a result a vicious circle is developed with the difficulty of clearly recognizing the primal cause and the resulting effect. As the condition becomes fully developed, the tongue is coated, appetite lost, pressure felt in the gastric region at times when the stomach is empty, at other times increased by the ingestion of food, fullness, belching, nausea lasting weeks or months, sensations of burning, emptyness and contractions. The belching of gas is a constant symptom and may even take the form of nervous eructations. The gas belched is always without odor and taste. Intestinal symptoms are also present—constipation of severe or moderate degree, constipation alternating with diarrhœa and diarrhœa continuous or periodic, also colics, flatulence, tenesmus, abdominal hyperæsthesia.

With these physical evidences of illness signs of mental involvement develop *cum pari passu.* They become depressed, anxious and worried about their condition. They suffer from insomnia, are forgetful and do not seem to be able to concentrate their thoughts. Their symptoms do not improve under the usual medication; they become fearful that they have some serious gastric condition, as cancer, and this added worry simply intensifies their distress. As these symptoms continue with marked loss of weight, the attending physician after having exhausted all the common remedies, begins himself to fear that his patient may have some malignant condition and this fear is too often suspected or discovered by the patient. The use of the stomach tube and the examination of the stomach contents after a test meal now serve a good purpose. It tends at least to suggest the true condition of the malady and to indicate the symptomatic treatment. For the patient it gives him the assurance, which is a potent factor in all neurasthenic states, that a complete examination of his condition has been made and that the physician understands thoroughly his case.

Characteristic of many of these cases is the extravagant and variable character of their complaints. They will have good and bad days closely associated. For long periods their condition may be satisfactory, they feel perfectly well, eat and digest everything, when, suddenly, without apparent cause, an attack of their old stomach trouble occurs.

If the cause has been some emotional disturbance, the diagnosis is more apparent but often no definite cause can be determined.

Frequently the patients will relate how much better they feel just as soon as they take the train to leave home or that when traveling they never gave a moment's thought to their food and never suffered from any of their dietetic indiscretions. They forget that when they leave home, they leave behind their cares, worries and anxieties and look forward in a happy frame of mind to a period of restful enjoyment and pleasurable recreation.

The diagnosis is easily made when the physical and chemical examinations show normal results. It may present some difficulty if certain abnormalities as gastric atony, gastroptosis and floating kidneys are found.

Although a floating kidney may provoke symptoms resembling those of nervous dyspepsia, it is probable that in the vast majority of cases it is of no great importance especially in those who have no severe physical work to do.

The possibility of some reflex irritation from a disorder of some other organ, as the pelvic in women, should be kept in mind and such disorder should be appropriately treated. Too much hope should not, however, be raised in the mind of the patient that the cure of this disorder will effect a complete recovery, as the neurasthenic basis still remains and the neurasthenic relapse, which commonly occurs, would under such circumstances hurl the patient from the heights of hope to the depths of despair.

The differential diagnosis from an ulcer may present many difficulties but is usually possible. The attacks of pain in ulcer are more dependent on the quality of the food, occur more regularly and at a definite period of digestion. Vomiting is more severe in ulcer and always occurs at about the same stage of digestion. The ulcer-cure in a very few days favorably modifies the symptoms of ulcer but has no effect on nervous dyspepsia. Carcinoma, except in its very earliest stage, ought not to be confounded with nervous dyspepsia. The absence of free hydrochloric acid or its gradual decrease, especially if associated with progressive emaciation and constant symptoms, is naturally, highly suspicious.

Chronic gastritis with diminished acidity, abundance of mucous, reduced appetite and constant intolerance of anything indigestible, presents a picture which should not often be confused with nervous dyspepsia.

Treatment should consist first of all in gaining the entire confidence of the patient by your manifest comprehension of his condition and by the assurance you are thus able to give him that he is not suffering from an organic disease of the stomach. The nervous system in general should be strengthened and improved and the digestive function in particular. If the patient is well nourished, the treatment is largely that of neurasthenia. If he is emaciated, which is usually the case, the treatment should be directed to the improvement of the nutrition. For this purpose as full a diet as possible should be given with regulated out-of-door exercise and gymnastics. In many cases a modified Weir-Mitchell cure is most effective.

The medical treatment should be largely symptomatic and directed to meet conditions as they arise. Alkalies if there is marked hyperacidity and acids when the acidity is much below normal.

No medicine, however, can help much one weighted down with business anxieties and mentally exhausted by responsibilities, if the cause continues. There is only one recourse—to free him from the slavery of his occupation, to break the endless chain of business worries and to substitute as completely as possible for the sisyphean struggle a natural animal existence, careless as to time, money and ambition.

The following cases illustrate the variations in the gastric secretion found in this condition.

C. C. K., æt. 57; married (one child); lawyer, Lansingburgh, N. Y. Referred by Dr. Travell, Troy, N. Y.

Patient, a tall, spare man of highly nervous temperament, consulted the writer May 26, 1902.

Four years ago he had had abdominal pain with diarrhœa, but recovered in a few days. Two years later had another attack, but without diarrhœa, and since then has had five or six severe attacks. Has never been jaundiced. Has had three attacks of renal colic, which were different from above attacks. Is very weak and has lost in weight twenty pounds in the last two months. Has a sensation of soreness across the abdomen; never vomits, but a sour regurgitation arises in his throat and after eating belches up much gas without odor or taste. Last winter went to Cuba and while away felt very well. Has become nervous and anxious about his condition, is fearful of cancer, takes no interest in his work and cannot concentrate his thoughts on any business. Markedly constipated. Physical examination and examination of urine were negative. Stomach contents after a test breakfast appeared well digested with no mucus. Total acidity was 120. Free hydrochloric acid, 87. (Marked hyper-acidity.) Peptone +. Erythrodextrin +, Lactic acid —. No retention. The assurance that he had no malignant condition together with the indicated treatment produced after a few months a complete recovery. He has remained perfectly well except for one or two slight relapses, due to overwork and worry.

R. B., æt. 40; married; leather manufacturer, Johnstown, N. Y. Was referred to the writer in April, 1901, by Dr. Hun, Albany, N. Y.

For five years he had had attacks of fear without reason, and these attacks have grown worse and more frequent in the last two years. A feeling of shock passes over him and he is tempted to jump off trains and commit suicide. Has at these times much belching of gas, but has no special gastric distress and no kind of food has seemed to disagree with him.

Physical examination was negative except that splashing was easily obtained below the umbilicus and the stomach seemed much dilated. Urine was negative. Stomach contents showed a total acidity of ten. Hydrochloric acid deficit. (Marked hypo-acidity.) Lactic acid —. No retention. Lower border of stomach reached one and one-half inches below the umbilicus. In ten weeks gained seven pounds in weight, feels much stronger and his neurasthenic attacks have been less frequent and less severe.

T. R., æt. 59; lawyer, Rochester, N. Y. Referred by Dr. Bielby, Rochester, N. Y., in June, 1901.

The patient is a highly nervous professional man with a large practice. He broke down in 1874, and for four years was unable to do any work. From 1880 to 1895 he did an enormous practice, and shortly afterwards met with great financial reverses. Usually sleeps badly, has become depressed and anxious about his condition and does not seem to be able to do his work with comfort. Has no pain, but belches up much gas. Formerly had an acid taste, but now it is more pungent and breath is foul. Has never vomited. Has lost twenty pounds in weight during the last year, although he has recently gained about three pounds. Food does not seem to have any especial influence on his symptoms. Physical examination negative. Stomach contents after a test breakfast showed: Total acidity, sixty; free hydrochloric, forty; no evidence of retention. (Normal acidity.)

Regulation of diet and manner of living with tonics produced considerable improvement, and he has been practically well since then except for occasional relapses due to his strenuousness.

THE ISLANDS OF LANGERHANS IN CONGENITAL SYPHILITIC PANCREATITIS.

By RICHARD MILLS PEARCE, M. D.,

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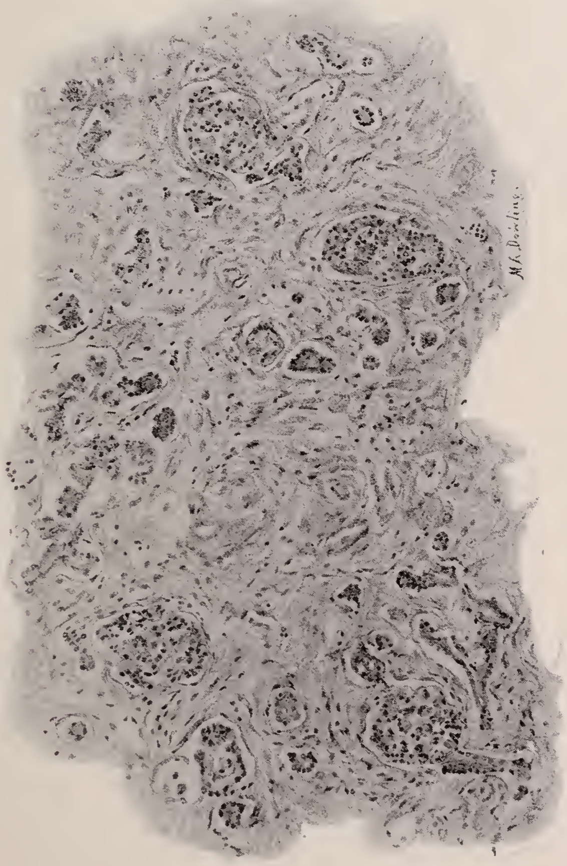
(From the Bender Hygienic Laboratory, Albany, N. Y.)

It is not my purpose in the present communication to give a detailed study of the lesions of congenital syphilitic pancreatitis. The condition is not important clinically, for it is found usually only in the still-born or in those dying shortly after birth; the pathology of the condition on the other hand, has been thoroughly studied and little can be added to the original description of Birch-Hirschfeld and the later systematic study of Schlesinger. The histological picture, however, shows a peculiar relation between the islands of Langerhans and the newly formed tissue which, as it has not been generally recognized and as it offers evidence in confirmation of our newer ideas concerning the anatomical and physiological independence of these structures, is I believe worthy

To Illustrate Dr Pearce's Article on " The Islands of Langerhans in Congenital Syphilitic Pancreatitis."

Albany Medical Annals, January, 1904.



of special consideration. The study of the islands in this condition is also important, because occurring as it does in the foetus, it offers an opportunity to study the structures under adverse conditions of development, thus filling the gap between the normal development and the pathological changes seen in the adult organ.

Our recently acquired knowledge of the islands is almost entirely due to the work of Opie,[1] who has shown that a certain proportion of the cases of pancreatic diabetes have a definite relation to lesions of the islands of Langerhans. Upon these observations, which have been confirmed by several American and German investigators, is based the assumption that the islands have a physiology distinct from the remainder of the pancreas, and concerned especially with carbo-hydrate metabolism, therefore of prime importance in the pathology of diabetes. Very substantial support of this anatomical and physiological independence is offered by the experiments of Ssobolew[2] and Schulze.[3] These investigators, working independently, have shown that after ligation of the pancreatic duct in animals, the glandular portion of the organ atrophies and is replaced by fibrous tissue while the islands are unchanged and the urine remains free from sugar. Opie has observed a similar condition in the pancreas of man as the result of partial or complete duct obstruction by calculus or cancer.

It is this same picture of a chronic sclerotic inflammation with disappearance of the greater portion of the glandular structure and the persistence of the islands that is seen in the congenital luetic lesion of the pancreas. This persistence of the islands has not, however, been generally recognized, owing probably to the infrequency of the post-mortem examination of newly born children and in part to the fact that our interest in the pathology of the island has only recently been aroused. Previous to this awakening the only references are those of Schlesinger[4] and Condon[5] who merely mention the presence of the islands; while, since, Opie and Ssobolew the chief supporters of the theory of anatomical independence have offered this persistence of the islands as evidence in support of their view. At the time of their publications, however, our knowledge of the normal development of the islands was incomplete. This gap has been filled by my recent study[6] of the development of the island in the human embryo, and it is in connection with the results of this study that I wish to consider the changes in the syphilitic organ.

Literature of Congenital Syphilitic Pancreatitis. The first complete study of luetic pancreatitis of the new born was made by Birch-Hirschfeld[7] in 1875. In the series then reported, lesions of the pancreas were found in thirteen of twenty-three cases examined, but in a later series, in but twenty-nine of one hundred twenty-four. The frequency of the lesion in the second series agrees with the observations of subsequent writers.

The gross appearance of the organ is characteristic, the most striking feature being the increase in consistence, which in advanced cases approaches that of cartilage. An increase in size and weight is also quite constant. On section the surface of the organ is hard, white and glistening, the glandular appearance being entirely effaced. Birch-Hirschfeld compares the appearance on section to that of a fibroid; Cruveilhier, to that of a scirrhus cancer. Previous to Birch-Hirschfeld's study, this induration of the pancreas in congenital lues had been noted in isolated instances by Osterloh,[8] Cruveilhier,[9] Hecker,[10] Œdmansson[11] and Wegner.[12] The changes are most marked in the head of the pancreas, a fact which led Mraczek[13] and Beck[14] to consider the lesion to be an extension from the duodenum. Schlesinger states that there is no constant relation to syphilis of other organs, though the pancreas may be adherent to such.

Birch-Hirschfeld (1875) describes the lesion, histologically as an increase of connective tissue which compresses and causes atrophy of the glandular elements, without evidence of degeneration. Schlesinger (1898) gives a most complete histological study and decides that the increase of connective tissue is of perivascular origin. Contributions to the pathology of the lesion have been made also, by Huber,[15] Friedreich,[16] Mraczek, Müller,[17] Baumgarten,[18] Beck, Heubner,[19] Ssobolew, Opie and Condon. Gummata have been found only by Klebs,[20] Beck and Birch-Hirschfeld which is in striking contrast to the syphilitic lesion of the adult pancreas. Baumgarten and Cruveilhier describe a lardaceous appearance, but whether they use this term in the descriptive sense or to specifically refer to amyloid infiltration, is not clear from the text. Some difference of opinion exists concerning the period at which the lesion develops. Birch-Hirschfeld places it late in pregnancy; Schlesinger much earlier and quotes cases described by Müller and Mraczek in which it existed at the fifth month. Opie's statement that the almost complete absence of glandular tissue is due to arrested development rather than to degeneration indicates that he favors Schlesinger's view. It may be mentioned that the condition has been found five months (Birch-Hirschfeld) and three and a half years (Heubner) after birth. The involvement of the pancreas occurs in order of frequency after that of bone, lung, spleen and liver.

Material. My interest in congenital syphilitic pancreatitis was first aroused by Prof. Marchand of Leipzig, at whose suggestion I undertook an investigation of several minor points concerning the development and pathology of the islands of Langerhans. From the material of the Leipzig Institute, six specimens were obtained. Later while completing a study of the embryology of the islands, with the aid of material placed at my disposal by Prof. Mall of Baltimore, two additional examples were found. A single specimen was obtained from Dr. Flexner's collection of pancreas material and one also from the collection of Dr. George Blumer. I take this opportunity to thank these gentlemen for placing this unusual material at my disposal.

In all of these ten specimens the lesion is of the advanced sclerotic type with almost complete disappearance of the glandular elements. The early stages with infiltration of plasma and lymphoid cells are not seen. A careful study of the lesion adds practically nothing new to our knowledge of the general process. Selective stains prove the new tissue to be mainly of the white fibrous variety; the elastic tissue to be unchanged, or indeed in some instances, less in amount than in the normal pancreas. In one case very widespread mucoid degeneration of the new connective tissue was seen. Miliary gummata (syphilome miliare) were found in but one of the ten specimens.

The most striking feature is the persistence of the islands of Langerhans, despite the general destruction of the glandular acini. Throughout the dense fibrous tissue, with here and there the fragmentary remains of gland tissue, the islands stand out prominently, often surrounded by denser whorls of investing stroma, but apparently uninjured. (See illustration.) This appearance is present constantly in all specimens and in all grades of the lesion, and the most careful search fails to reveal, in the islands, evidence of degeneration or atrophy, or the ingrowth of connective tissue. The absolute resistance of the islands to the process so destructive to the secreting portion of the gland is very strong evidence in favor of their anatomical independence and this condition, if considered in connection with our knowledge of the development of the islands, is very readily explained. While in most instances the islands appear entirely isolated, close examination shows that occasionally an island is connected with a glandular acinus by a stalk-like process of cells. This connecting band is in most instances a solid mass of epithelial cells; though, sometimes, a semblance of a lumen may be discerned. Opie alone as far as I am aware, notes this band of cells connecting island and acinus. Upon this observation and the fact that no evidence of degeneration is seen in the island he bases the assumption that the island in its early development is in connection with the acinus and that its development is interrupted, in syphilitic pancreatitis, by the ingrowth of connective tissue which causes atrophy of the glandular tissue and leaves the more resistant island in its undeveloped state. At the time of Opie's communication our knowledge of the development of the islands was incomplete and especially so the manner in which the island became independent of the acinus from which it originated. That his assumption is correct, however, is shown by the results of my recent study of the development of these structures in the pancreas of the human embryo. These results may be briefly summarized as follows:

"The islands of Langerhans (embryo of fifty-four millimetres), originate through a proliferation and differentiation of the cells of the primitive secreting tubules. The differentiated cells characterized by a rich, finely granular, eosinophilic protoplasm lie as small round or oval masses in direct continuity with the cells of the tubule. Later, (embryo of about the third month) the attached portion becomes constricted, and lengthening, forms a a stalk-like, solid process of cells connecting the island with the acinus. At this period, a few entirely isolated islands are present. A separation takes place apparently brought about by the pressure of the investing connecting tissue. Vascularization has now occurred. In still later stages a progressive vascularization, increase of cells, arrangement of the cells in columns, and appearance of a fine reticulum is observed. The rapidly forming glandular structures finally surround the islands which then occupy the centres of the lobules."

From this summary it will be seen that in the pancreas of the third month the islands are still connected with the acini by solid processes of cells. The proportion of connective tissue at this time is very great, as the rapid glandular growth does not occur until the fifth and sixth months. Any disease of the pancreas occurring at this time would, therefore, influence the development of the organ, and evidence of this faulty development would be present at any subsequent stage of the lesion.

This seems to be the case in the lesion under consideration. Syphilis of the pancreas has been observed as early as the fifth month (Müller) and although there are no definite observations of its earlier occurrence, the appearance of the islands in the luetic pancreas when compared with the normal development of these structures indicates the possibility of the lesion occurring as early as the third month. The general microscopic picture of the normal pancreas at the end of the third month is very similar to the syphilitic organ at the sixth or seventh month, except that the latter has a larger proportion of connective tissue: *the same stage of development of the islands is seen in both.* In other words, at the latter period we have the development of the third month plus the connective tissue produced by the syphilitic lesion. It seems justifiable, therefore, to conclude that the syphilitic infection occurs at the period (third to fourth month) when the islands are still connected with the gland tubules, and that the newly formed tissue causes atrophy of the gland acini, but spares the more resistant islands. Thus is explained the similarity of the islands in the two conditions. The ultimate factor in this resistance of the islands is their abundant blood supply. That this vascularization of the island is not altered in syphilitic pancreatitis, I have demonstrated by the study of the diseased organ injected with Berlin Blue.

The evidence obtained by experiment and by the study of the pancreas of diabetics has already placed the theory of anatomical independence of the islands upon a substantial basis. The study of their development, has demonstrated that although they originate from the glandular tissue they eventually become wholly independent structures anatomically. It is with the object of adding still further confirmatory evidence, that this communication which adds nothing essentially new, but attempts to correlate known facts, is made.

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A STUDY OF THE CHANGES OCCURRING IN THE ENDOMETRIUM DURING THE MENSTRUAL CYCLE.

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Probably the first recorded observations on the condition of the uterine mucosa during menstruation were published by Kundrat and Engelmann in 1873. Since that time numerous investigators have studied the subject but the results of their work show the greatest differences of opinion.

Without doubt, as we shall see, these varied views were due to several causes, principally the source of the material and the more accurate results obtained through better preserving fluids and more satisfactory fixing methods as well as to the recent rapid progress in microscopical studies.

In the study of the changes which take place in the uterine mucosa during the menstrual cycle we have several methods to pursue. The first method employed was that of the examination of the mucosa in uteri removed at autopsy and consequently, as this was the most natural source for the securing of material for microscopical study, we find that the earlier and the greater number of observers, Kundrat, Engelmann, Sir John Williams, Sinety, Leopold, Wyder, Von Kohlden, Christ, and Wendeln conducted their studies on the uteri removed at autopsy from patients who had died during menstruation.

That the earlier observations were faulty is not to be wondered at since it is a well-known fact that autopsy material unless secured very early post-partum is more or less changed. Gebhard referring to the conclusion of Wendeln obtained by the study of autopsy specimens, claimed that it is never allowable to show cadaveric preparations as proof of the condition of the mucosa where the material has been taken thirty-four hours post-partum. We believe that even this is rather late to secure proper material.

In the first place, as pointed out particularly by Leopold and Wyder, it is absolutely necessary that an exact anamnesis be secured in each case, whatever the source of the material, in order to be assured that one is dealing with a true menstrual hemorrhage. That this has not been followed in many of the earlier observations is certain.

Another source of error in the earlier observations, and one that is liable to be experienced by every laboratory worker unless the greatest care is taken, is that in passing the material through the fixing solutions there may be more or less loss of substance. Inasmuch as the first important question to be decided is whether there is a loss of substance resulting from menstruation or not, it is necessarily important to use such fixing solutions as will preserve the specimens intact.

A number of authors have not stated their methods of preserving and fixing their material. A number employed Müller's fluid. Leopold preserved his specimens first in weak then in stronger alcohol. He was opposed to Müller's fluid because the superficial layers which are saturated with blood are easily broken off. This is certainly true unless the specimens are most carefully handled, and it is due to the fact that Müller's fluid must be changed and the specimens washed so often before the tissue is fixed. After hardening has taken place the pieces of tissue may then be moved about and the fluids changed frequently without loss of substance. Mandl finds that the corrosive sublimate solution proves the best for the study of the condition of the epithelium and that Flemming's fluid was of the greatest service for the study of the process of regeneration.

Finley and other recent observers used Zenker's solution and since this fixes the specimens quickly without changing the solution and without handling them frequently it has proved very satisfactory. Could this solution have been used in earlier observations there would have been less disagreement as to the changes which take place especially as regards the loss of substance.

Möricke was the first to examine scrapings from the normal menstruating uterus and thus excluded the possibility of postmortem changes. Lëhlein, Gebhard, Westphalen and others soon followed his example and these investigators arrived at different conclusions than did the earlier observers who used autopsy material. Wendeln had some doubt of the value of the examination of curettage specimens on the grounds that the whole mucous membrane is not obtainable and consequently conclusions based on the examination of only a part should not be made. It is possible, too, that curetted material may appear hemorrhagic on account of the numerous blood cells which are intimately associated with the material in its removal and in the process of blocking.

Sinety examined the menstrual flow and the mucus adhering to the superficial layer of the mucosa in order to draw conclusions as to the condition of the deeper layers. In such a method the possibility of arriving at erroneous conclusions is apparent. Wyder aspirated the menstrual discharge from the cavity of the uterus by means of a uterine syringe in order to avoid the glands of the cervix and to reduce the negative pressure to a minimum.

In order to determine the probable loss of substance of the mucosa during menstruation the writer undertook to examine the napkins of thirty patients through the menstrual period. The patients were instructed to change the napkins frequently and to soak in cold water, being careful to save any clots and at the end of menstruation to take a vaginal douche of plain cold sterile water so that all the discharge might be collected. This douche water and that in which the napkins were soaked was centrifuged so as to obtain all the sediment possible. This sediment was then hardened in alcohol and passed through in the routine manner. Great care was taken to secure patients who had a normal menstrual history and in whom there was no apparent diseased condition of the endometrium.

The small amount of material thus obtained was cut and stained with hæmatoxylin and eosin. The result of such examination will be mentioned later on.

Another method which is the most important of all is that of the examination of sections of uteri removed during the menstrual period for lesions not involving the endometrium. This method of examination was only lately carried out since surgeons prefer not to remove the uterus during active menstruation.

Probably the most elaborate investigations were carried on by Gebhard, in Berlin, and Westphalen, in Keil, who not only studied the mucosa of menstruating uteri obtained by curettment and of uteri obtained at autopsy but also sections of uteri removed by operation during the menstrual period. Williams, Findley, Edgar and others in this country also recorded their observations on the examination of the mucosa of uteri removed during operation.

In women, who must lose diseased adnexia and in whom the anamnese and the examination of the uterus led one to expect no particularly abnormal condition of the uterine mucous membrane, Mandl and other operators awaited menstruation and removed the uteri during this period. No intra-uterine manipulation was carried out and in order to protect the organ from unnecessary handling extirpation was performed as quickly as possible by clamping off the parametrium and ligaments and cutting rapidly. In order to avoid the slightest possible injury to the mucosa the uterus was opened on the anterior wall cutting from the cervix to the fundus and then a portion was removed from the posterior wall and placed immediately in fixing fluids. Findley placed the uterus in salt solution immediately after removal and then placed in Zenker's solution for twenty-four hours.

The views of the numerous investigators are so contradictory on several points that it will be necessary to consider them more in detail.

Leopold divides the menstrual cycle into four stages: (1) active menstruation; (2) regeneration; (3) resting stage; (4) premenstrual swelling.

In as much as the stage last mentioned is really the preparatory one, according to my observations, and the beginning of the phenomena exhibited in the change of the uterine mucosa due to menstruation, we will discuss this division of our topic first.

Westphalen, Leopold, Doléris, Pompe, Van Meerderwordt, Herzog, and others are practically agreed with the conclusions of Gebhard based on his observations of the scrapings and sections of uteri removed during the menstrual period for lesions not involving the endometrium.

From a study of the literature on the subject, and from the examination of such material as I have been able to secure, the following information has been gleaned.

In this stage, which begins to develop gradually as soon as the process of regeneration is complete, which is about the eighteenth day after the flow ceases, we find that the capillaries of the mucosa are congested resulting in a serous or serosanguineous exudate infiltrating the stroma of the mucosa. During the state of regeneration the cells of the stroma lay over each other rather thickly but now become pressed apart particularly in the outer third of the mucosa.

The protoplasm of these cells become compressed and the projections by which they are bound together are either greatly lengthened or completely separated. In the meshes lies a light opaque mass, which seems similar to blood serum and which is often separated in the larger vessels from the chromocytes.

Later the blood leaves the capillaries and infiltrates the stroma, gravitating in the direction of least resistance, *i. e.,* toward the uterine cavity, and, just before the active flow begins, forming a collection of blood beneath the surface epithelium—the sub-epithelial hæmatoma of Gebhard.

It is quite impossible to say whether the bloody condition of the effusion along the borders of the mucosa belongs entirely to the normal or not, for it is apparent that in curettage hemorrhage easily occurs in the mucosa while in extirpation an engorgement of the vessels occurs very easily, especially when the broad ligament is not clamped. Even traction on the uterus from below, according to Westphalen, results in venous stasis with consequent small hemorrhages.

The vessels become larger in the loosened swollen stroma and are for the most part more filled than in the period of regeneration but the greater increase in size occurs only shortly before the beginning of menstruation proper.

Many observers agree that there is also an increase in the size of the glands of the mucous membrane, since these appear widened and winding and frequently on cross section the walls seem to be thrown into folds in the lumen. The increase in size of the glands is due no doubt, to the collection of the secretion of the gland cells. It is this mucous-like product of the gland cells which gives them a quite granular appearance. The gland cells become uniformly swollen and take stains more evenly, and their nuclei are more widely separated as a result of the increase in the volume of the protoplasm, and are uniformly more round in comparison to the oval-nuclei which are seen in the regeneration period. In all the stages the cell nuclei are near the base as a rule, although Westphalen has often noticed that they stand in the middle of the cell in the beginning of the state of pre-menstrual swelling. Consequently the mucosa is increased in thickness from two to three millimetres up to six and seven millimetres,—the thickness varying greatly in the same uterus owing to the unequal distribution of the muscle layers directly beneath the mucosa.

Kundrat and Englemann found a fatty degeneration of the mucous epithelium as well as of the gland cells and interglandular tissue and the hemorrhage and œdema of the mucosa according to these early investigators, were produced by a fatty degeneration of the walls of the vessels which were now increased in size and completely filled with blood—these conditions resulting in a laceration of their walls and a consequent hemorrhage into the tissue. They noticed that the greater part of the hemorrhage was superficial and that fatty degeneration is most noticeable in the same portion of the mucosa.

Sir John Williams also believed that fatty degeneration occurred and consequent degenerative changes took place.

Leopold claimed, and rightly, that the hemorrhage is a superficial capillary one due largely to the peculiar condition of the vascular structure in the mucosa (numerous arteries and capillaries and proportionally a less number of veins). What he described as a fatty degeneration of the superficial elements, was assigned, not as the previously mentioned observers assigned as the cause, but as the result of the hemorrhage.

Möricke and other observers maintain that fatty degeneration of even the slightest grades is not to be found.

Kundrat, Sinety, Leopold, and others have described an increase of the round cells and small celled infiltration but this is not confirmed by subsequent observers and their presence is denied by others.

Leopold described the appearance of giant cells (with eight to ten and even more nuclei) especially in the projections of the mucosa into the muscular tissue. Other investigators have confirmed this observation.

At the end of the pre-menstrual stage we find, therefore, the mucosa is swollen greatly and infiltrated with a serous or sero-sanguineous exudate and that collections of blood are formed beneath the surface epithelium ready to burst out.

The stage of active hemorrhage now appears—being described as the first stage by Leopold and as the second by Gebhard. The question now arises as to how the blood reaches the uterine cavity and how much mucous tissue is destroyed by this process.

Gebhard states that the blood reaches the uterine cavity by being forced between the epithelial cells of the surface or of the glands, or the continuity of the surface is broken by the lifting of small masses of cells from their bed these providing an exit for the collections of blood beneath.

Christ believed that in the weaker menstrual congestion the blood escaped between the epithelial cells of the surface of the mucosa and of the glands. Where the congestion was more marked slight defects occurred in the surface through which the blood poured out and where the menstrual flow was very profuse there was a more sudden and a greater loss of the surface epithelium, which allowed the outflow of blood. This observer claimed to have seen in many places the passage of red cells between the superficial epithelium as well as between the epithelium of the glands but he has given us no drawings of this condition. Others agree with this view but do not make the statement as a result of their own observations.

Mandl made careful examinations of a number of sections but did not observe in any case the passage of red blood cells between the epithelium although these cells are easily observed when specimens are fixed in sublimate solution and stained in hæmatoxylin and eosin—the method he adopted. He repeatedly found leucocytes, however, which had become fixed in their wanderings between the epithelium of the surface and of the glands as well, and believed that by the wandering of these leucocytes the union of the epithelial cells is broken so that the blood follows more easily in such places.

But perhaps the most important question, and the one concerning which there is the greatest diversity of opinion, is whether or not any portion of the mucosa is destroyed by the process of menstruation.

If we examine the results of the studies of the various authors already mentioned we will see that the earlier observers particularly held the opinion that not only is the whole superficial epithelial layer destroyed but also a considerable part of the mucosa disappears.

Another group of observers believe that the whole mucosa and even the superficial epithelial layer remains intact; while a third group takes the middle ground and describes a loss sometimes of a less, sometimes of a greater part of the epithelium and mucous membrane.

In the first group we find Engelmann, Kundrat, Sir John Williams and Von Kahlden. The latter, who undertook a thorough study of the published communications on this subject up to the appearance of his work in 1889, came to the conclusion that in all probability in menstruation the whole surface epithelium with a very considerable part of the mucosa is thrown off. But these observations were made on cadaveric material which had been obtained when post-mortem changes had probably taken place and the fixing solutions used necessitated frequent changes and consequently much handling. As already pointed out these conditions would result in a loss of substance in such frail material as the uterine mucous membrane, especially during menstruation.

Of the group of men who believe that at no time during menstruation is any part of the mucosa lost, De Sinety is the only early worker on autopsy material. Möricke, Strassmann, Findley, J. Whitbridge Williams, C. Ruge, Veit, Gebhard, Mandl, Leopold, Meerdervoort and others believe that only a small portion of the superficial epithelium is lost and that this is purely accidental.

Underhill, Wendeler, Heape, and others, believe that only the superficial portion of the mucosa is destroyed.

There is no doubt but that the character of the hemorrhage has much to do with the amount of destruction of the superficial epithelium. If the congestion is of rapid development and the collection of blood beneath the surface epithelium is extensive there must necessarily follow a destruction of at least a portion of the overlying surface epithelium. If the hemorrhage is slight and takes place largely by diapedesis the loss in the epithelium would be almost nil.

This I have proved, at least to my own satisfaction, by the examination of the menstrual discharges as already mentioned. Lack of space will not allow a detailed description of these cases.

In the thirty cases examined the period of menstruation extended from one to eight days. There were two cases of one day's duration, one of two days, twelve of three days, seven of four days, three of five days, two of six days, two of seven days, and one of eight days' duration, all of which were carefully examined.

In the first three cases mentioned there was practically no sediment and this was composed principally of red-blood cells and some vaginal epithelium. In two of the twelve cases where the flow lasted three days the onset was severe and the flow considerable, but with little or no pain experienced by the patient. In these two cases there was considerable sediment which contained a large amount of blood and numerous epithelial cells from the mucosa, as well as vaginal epithelium and other debris.

In one of the seven cases menstruating four days, the flow was slight the first day but increased in severity the last three days. In this case, however, there were not many epithelial cells found in the discharge. In the two cases of six days, the two of seven days, and the one of eight days' duration the flow was considerable in amount as it extended over so many days but it occurred gradually. Proportionately to the amount of sediment there was a less number of epithelial cells than in the two specimens obtained from the patients whose periods lasted three days.

In as much as only practically normal cases had been selected the results show that there is some loss of epithelium during normal menstruation and that the amount of loss is dependent upon the severity and not necessarily upon the length of the menstrual period. There were certainly not enough epithelia in the discharge in any of the cases to suggest a complete loss of the superficial layer of the mucosa.

With the disappearance of the menstrual flow involution begins. We find that the blood vessels decrease rapidly in size as the engorgement lessens and that blood is no longer extravasated into the connective tissue spaces. What blood is left in the stroma is rapidly absorbed.

Granting now that there is a partial loss of the surface epithelium the question arises as to how this loss is repaired.

According to Leopold the surface epithelium which has been lifted from its bed, if the continuity has not been broken on all sides, resumes its former place and the lost epithelium is regenerated from adjacent cells. This is the consensus of opinion.

Sir John Williams, who claimed that the whole mucosa was destroyed, believed that the mucous membrane was regenerated from the epithelium of the glands which penetrated the muscle layer. Wyder, who taught the partial destruction of the mucosa, believed that there was a cell hyperplasia of the interglandular tissue in the deeper layers of the mucosa, which provides for the restoration of the loss of cells and that a regeneration of the superficial epithelium takes place from the gland epithelium and from the remaining "cell-islands."

Wendeler believed in a partial loss of the epithelium and that the necessary regeneration was accomplished as previously from a cell membrane situated under the base of the old epithelium containing flat, tender epithelium. No other investigator has observed such a membrane, however.

Mandl was the first, I believe, to demonstrate the various stages of well marked mitosis in the epithelium of the covering layer and showed that the lost cells were replaced by indirect cell division of the remaining cells. He believed that the gland cells also assisted in this process but did not agree with Von Kahlden who claimed that the formation of the new cells resulted entirely from those of the glands whose openings became widely extended and whose cells spread out in all directions.

The length of time necessary for the complete regeneration of the mucosa varies necessarily according to the amount of tissue lost. Williams believed that the entire mucous membrane was restored in a few days. Leopold states that the regeneration of the lost epithelium is performed likewise in a few days after the close of the menstrual flow. Westphalen, however, thinks that this process is a longer one consuming from six to eighteen days and believes that this stage is prolonged through the third or resting period as described by Leopold. In any event the interval between the complete restoration of the mucosa and the premenstrual congestive state is very short.

Whether the mucous layer of the Fallopian tubes undergoes a change during menstruation is a question. Personally I have not been able to examine the mucosa of the tubes removed during menstruation.

Mandl in one case, where he had removed the uterus and adnexia on the fourth day of menstruation, found that the mucous membrane of the tubes was swollen and hemorrhagic although the adnexia were normal.

Findley is the only observer who has exhibited a drawing of the mucous membrane of the tube during menstruation. He reports two cases in which the changes in the mucosa of the tubes were similar to those in the uterus, *i. e.,* there was a marked engorgement with blood, and free blood was found in the mucosa and in the lumen of the tube. The surface epithelium was found intact.

In conclusion we would offer the following resumé:

The menstrual cycle is divided into three periods; the first, preceding the menstrual flow and characterized by gradual development of a capillary congestion resulting in a serous or serosanguineous infiltration of the stroma of the mucosa, separating the cellular elements and gravitating toward the periphery forming collections of blood beneath the surface epithelium. Slight glandular hypertrophy as well as a swelling of the gland cells takes place, with a consequent hypertrophy of the whole mucosa. This stage is well exhibited in figure I, taken from a drawing by one of my students, Mr. Harry Rullison, to whom I would express my indebtedness, of a section of uterus removed immediately preceding the menstrual flow. A capillary engorgement and infiltration of the stroma, separating the cellular elements is especially noticeable in the outer portion. The enlarged cork-screw-like glands suggest a mild form of glandular hypertrophy.

The second stage of active hemorrhage is characterized by an outflow of blood through a diapedesis or through a rupture of the sub-epithelial hæmatoma, with more or less loss of the superficial epithelium depending largely upon the severity of the process. Figure II, a drawing of a section of a uterus removed the first day of the menstrual hemorrhage shows the infiltrated area near the surface with a breaking in the continuity of the surface epithelium allowing the blood an exit. In this plate the mucosa is drawn relatively too narrow.

In the third stage involution takes place. The engorgement of the blood vessels becomes quickly lessened and a rapid absorption of the blood in the stroma takes place. The epithelium which has been lost is regenerated by indirect cell division of the adjacent cells. This stage is prolonged until the premenstrual swelling begins or there is a slight interval during which the mucosa is inactive.

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To Illustrate Dr. Lipes' Article on "A Study of the Changes Occurring in the Endometrium during the Menstrual Cycle"

Albany Medical Annals, January, [illegible]

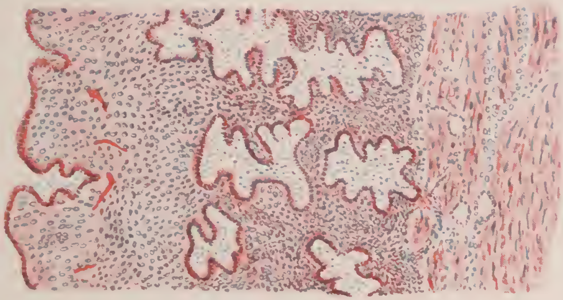

FIGURE 1.

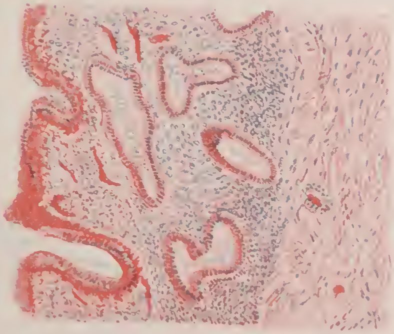

FIGURE 2.

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THE PATHOLOGY AND TREATMENT OF TETANUS.

WITH A REPORT OF THREE CASES.

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The scientific study of tetanus dates from 1884, when Nicolaier described the tetanus bacillus, and demonstrated that its most frequent habitat is the soil. Rosenbach, in 1885, demonstrated the presence of this bacillus in the pus from the wound of a man with tetanus, and Nocard, in 1887, made the same observation in the case of a horse with tetanus.

Kitasato, in 1889, was the first to succeed in obtaining the micro organism in pure culture.

The work, then, of these investigators first furnished an adequate etiological basis for the subsequent study of the disease, and the perfection of methods of treatment. After the discovery of the tetanus bacillus the question naturally arose as to how it produced the disease. This was answered by the demonstration in bouillon cultures of the bacillus of a most virulent toxin, which was shown to be the direct product of the life and growth of the bacilli. Further experiments showed that this toxin, when introduced into susceptible animals, produced the disease in all its details.

The tetanus bacillus has been shown to be widely distributed in the soil and especially to abound in the vicinity of stables, and in soil fertilized with stable manure. This is assumed to result from the fact that the tetanus bacillus is very commonly found in the intestinal contents of the horse, and occasionally in that of man. It is practically never found at a greater depth in the soil than thirty centimetres. Furthermore, the soil of certain localities seems to be more extensively infected than that of others, with the result that wounds of individuals who work in this soil are far more apt to result in tetanus. A rather remarkable fact is, that with the wide distribution of the micro-organism the disease is so comparatively infrequent, for it must frequently happen that the tetanus bacillus gains access to wounds without producing the disease.

Vaillard, Vincent and Rouget have studied this matter with especial care, and have found that as a rule tetanus spores can only multiply in the body when some of their toxin is introduced along with them. The inactivity of the spores is explained by the fact that the leucocytes destroy the spores, while the presence of the toxin prevents this action on the part of the leucocytes. The susceptibility of different animals to the action of the tetanus toxin varies greatly. The horse, goat, man, ape and guinea pig are the most susceptible, while other animals are more resistent, especially the hen, which was for a long time regarded as immune until Courmont and Doyon succeeded in producing the disease by the inoculation of extremely large doses of tetanus toxin. The triton, scorpion, and other cold blooded animals of this species appear to be immune, while the frog will develop tetanus only when kept in a temperature of from 27-36°C.

It was for a long time believed that the tetanus bacilli never penetrated the organism further than the lymphatic glands in the region of the site of the infection, and that only rarely. Nicolaier has, however, demonstrated their presence in the sheath of the sciatic nerve, as well as in the spinal cord, while Hochsinger, Belfante and Pescarolo, Dor and Hohlbeck have demonstrated the presence of the tetanus bacilli in the blood of infected human individuals.

Von Oettinger, Zumpe and Sacharjan have demonstrated tetanus bacilli in the organs of animals experimentally inoculated, although they were not successful in cultivating them from the blood. It is very evident that conditions other than the mere introduction of the tetanus bacilli must, as a rule, exist in order that infection may follow: These conditions are traumatism, anaerobic conditions, secondary infection, etc.

Especial attention should be directed to the rôle played by the secondary infection, which is present in a large majority of the cases of tetanus in the human individual. This secondary infection appears to greatly favor the development of both the tetanus bacilli and the toxin, and to its presence the advent of the tetanus bacilli to the blood and organs of certain cases has been ascribed.

Schutze has further shown that an absolutely inactive solution of tetanus toxin can be rendered active by the addition of sterile putrefactive solution, so that the inoculation of such a combined fluid will produce tetanus, while either solution, inoculated alone, is inert.

The chief portals of entrance of the tetanus bacillus into the human organism are through wounds, gelatin injections, and serum injections. During the past few years a number of cases of tetanus have been reported after the subcutaneous injection of gelatin in the treatment of aneurisms, hemorrhagic diatheses, etc., and Levy, Bruns and Schmiedecke have demonstrated the presence of the tetanus spores in specimens of gelatin.

From the focus in which the tetanus bacilli multiply the toxin produced readily gains access to the circulation, from which it appears to be rapidly absorbed by the central nervous system, and especially the spinal cord and medulla, in which structures its presence has been demonstrated, as well as in the cerebro-spinal fluid.

Certain authors, as Stintzing and others, believe that the tetanus toxin travels along the course of the nerves in the endoneural and perineural lymphatic spaces, and thus gains access to the spinal cord. This, these observers believe, explains the occurrence of the so-called local tetanus, that is, a tonic spasm of the muscles in the immediate vicinity of the site of inoculation manifested before the appearance of the general symptoms of the disease.

Local tetanus is of very frequent occurrence among the experimental animals; but is rare in man.

The very recent and exhaustive studies of Morax and Marie confirmed by those of Meyer and Ransom seem to disprove the theory of the transmission of the tetanus toxin along the perineural and endoneural lymphatic spaces and would seem to prove fairly conclusively that the toxin is transmitted to the central nervous system only along the axons of the peripheral nerves. These observers have furthermore shown that the toxin travels along the axon only in a centripetal direction.

On the theory of the transmission of the toxin along the nerves, the toxin finds its entrance into the spinal cord at the points of exit of the nerves, and produces its first effect upon the anterior horn cells of the segment from which these nerves arise. It has been conclusively proven that the tetanus toxin possesses an especial affinity for the anterior horn cells and their analogues, the motor nuclei of the medulla and pons as well as the peripheral and central axons. Courmont and Doyon have, however, shown that the motor neuron alone cannot produce or maintain the tetanic contracture.

Goldscheider has demonstrated that sensory impulses, whether they arise from the periphery or from the brain, play an important part in the production of the tetanic spasm. It would appear that the tetanus poison produces a greatly increased excitability of the motor nerve cells of the cord and medulla, which, stimulated by a great variety of sensory impulses, results in the tetanic spasms of the muscles. On this basis the so-called local tetanus is explained as the result of the local action of the tetanus toxin or other stimuli upon the sensory nerve terminals of the part involved, which stimuli are conducted to the spinal cord and in turn act upon the anterior horn cells of that segment, the excitability of which is already greatly increased by the action of the toxin in the system.

A striking feature of the action of the tetanus toxin is the fact that it requires hours, or even days, after its introduction into the susceptible animal to produce the symptoms of tetanus. An explanation of this so-called period of latency, or incubation, is difficult. Courmont and Doyon have asserted that the tetanus toxin as produced in bouillon cultures of the tetanus bacilli is not the real tetanus poison, but is rather a ferment which produces the true toxin only in the animal body. They furthermore believe that only those species of animals are susceptible to tetanus in which the fermentative process occurs. As a further proof of this they call attention to the fact that the cold blooded animals develop tetanus only when kept in incubation temperatures. This view does not, however, appear to have been generally accepted.

Much attention has been devoted to the study of the anterior horn cells of individuals and animals dead of tetanus, in the hope that some definite specific lesion might be demonstrated. Certain writers have described changes in the cells and nuclei characterized by an enlargement of the cell nucleus, as well as a swelling and disintegration of the Nissl granules. There is, however, nothing specific about these changes, many, if not all, of which have been denied by other observers. Goldscheider and Flatau state that there is no definite relationship between the tetanic spasm and a definite morphological cell change.

As a result of the pathological work so far done one cannot explain tetanus on the basis of any definite anatomical lesion of the nerve cell.

The action of the tetanus toxin on the nerve cell is perhaps best explained on the basis of Ehrlich's theory, according to which the protoplasm of the nerve cell possesses certain so-called side chains which have the ability to attract and attach to themselves the tetanus toxin circulating in the blood, in the same fashion as in chemistry certain molecules become attached to a base. When the toxin has thus become attached to the cell a condition of excitability is produced which may or may not be associated with an anatomical lesion, and which results in the tetanic spasm. The cell now attempts to rid itself of the toxin, and to this end the side chain with the attached toxin may be cast off. As a result of this there arises a defect in the cell, which is immediately repaired by the production of other side chains, often to an excess. The excessive side chains may then be cast off from the cell and circulate in the blood, thus constituting the antitoxin, and possessing the ability to unite or neutralize the toxin which may not yet have become attached to the nerve cells. The union of the toxin to the nerve cell is of gradual rather than sudden occurrence, and it must have reached a certain stage before symptoms develop, which explains the period of latency or incubation. The fact that new groups of muscles may become involved after the introduction of the antitoxin may be explained by assuming that at the time of the introduction of the antitoxin the toxin was sufficiently firmly attached to the cells to resist neutralization, but not sufficiently attached to produce the tetanic spasm.

There are two explanations to be offered for the more or less natural immunity possessed by certain animals from the tetanus infection. The first is that the nerve cells of certain animals possess but a very slight affinity for the tetanus toxin. This seems to be true of the hen, to produce symptoms in which large doses of concentrated toxin are necessary. Another possible explanation is that cells of the body, other than the nerve cells, may possess an affinity for the tetanus toxin.

Roux and Borrel have shown that in the case of the rabbit very much greater doses of toxin are required to produce tetanus if it be introduced intracerebrally than if it is introduced subcutaneously or intravenously, which is not the case in the guinea pig. Metchnikoff has found that the ovary of the hen possesses substances which will neutralize the tetanus toxin in the reagent glass quite as readily as the brain or cord.

Blumenthal has found that the tissues and organs of rabbits possess in varying degree substances which are capable of modifying the tetanus toxin, causing it, as a rule, to lose more and more of the ability to produce spasms, and transforming it into a paralyzing poison.

Various clinical classifications of tetanus have been proposed, most of which are more or less unsatisfactory. Von Leyden has perhaps proposed as satisfactory a classification as any hitherto suggested. He divides the cases into four groups, tetanus traumaticus, tetanus neonatorum, tetanus puerperalis and tetanus facialis. The first three are really subdivisions of traumatic tetanus, while the fourth, or tetanus facialis, differs from the others in that it is characterized by paralysis of the facial nerves. Many writers speak of an idiopathic or rheumatic tetanus, a term neither scientific nor correct, for all cases of true tetanus are due to the toxin produced by the tetanus bacillus, even though it may be impossible to demonstrate the portal of entry. It is probable that in most of these cases the tetanus bacilli gain access to the body through the respiratory tract, and Thalman has shown that, experimentally, tetanus can be produced in guinea pigs through infection of wounds of the respiratory passages.

The usual incubation period of traumatic tetanus is from eight to fourteen days, rarely longer than four weeks, although Ward reports a case in which the disease did not develop until ten weeks after the injury. Rose states that in thirty-three per cent. of the cases the disease develops in the first week, while in forty-five per cent. it develops in the second week.

The prognosis depends, as Moschcowitz has shown, upon two factors, first, the period of incubation; second, the rapidity of development of the symptoms. The shorter the period of incubation the more rapid is, as a rule, the development of the symptoms and the more unfavorable the prognosis. Rose states that about ninety-one per cent. of the cases in which the incubation period is one week or less die. In cases in which the incubation period is from one to two weeks the mortality is from eighty-one to eighty-two per cent., while in cases in which the incubation period is more than two weeks the mortality is from fifty to fifty-three per cent. The above statistics refer to cases not treated with antitoxin. The prognosis is most unfavorable in cases of tetanus neonatorum and tetanus puerperalis, only an occasional case ever recovering.

Von Leyden has especially emphasized the importance of the temperature of the patient in connection with the prognosis, and states that it is uniformly bad in cases in which the temperature is high. He has never seen but one case recover in which it reached 41°C.

The treatment of tetanus has a four fold object. First, to destroy the tetanus bacilli at the portal of entry; second, to neutralize the tetanus toxin; third, to allay the tetanic convulsions, and fourth, to nourish the patient.

To attain these ends different methods have been adopted, but the general trend of medical and surgical opinion has been along the same lines, and has resulted in rather more marked unanimity of sentiment than prevails in the treatment of most diseases.

The first indication, viz., the destruction of the bacteria at the portal of entry, is met by prompt and careful surgical treatment of the wounds presented by the tetanic individual.

Free incision with excision, if need be, of necrosed tissue, with vigorous application of strong antiseptics, especially trichlor iodin, Gram's solution, Lugol's solution, or a 1-1000 solution of bichloride of mercury in one-half per cent. of hydrochloric acid will usually answer all purposes. Some writers, notably Von Bergmann and others, have advocated and practiced amputation of the injured member, if the portal of entry be on the arm or leg. This procedure would, however, appear to be neither necessary nor justifiable unless indicated by conditions other than the presence of the tetanus infection.

The second indication, namely, to neutralize the tetanus toxin, is best met by the administration of antitoxin.

Tetanus antitoxin was discovered by Behring and Kitasato in 1890, when these observers demonstrated that the blood serum of an animal rendered artificially immune from tetanus possesses the power to neutralize the tetanus toxin. These observations were confirmed by Tizzoni and Catani, as well as numerous other investigators. The tetanus antitoxin protects only against the tetanus toxin, but has neither an antitoxic nor bactericidal action upon the tetanus bacilli. Since the original work of Behring and Kitasato much attention has been paid to the production of antitoxin, with the result that very powerful serum has been obtained for therapeutic use. It was at first hoped that the antitetanic serum would rob tetanus of its terrors in the same fashion that antidiphtheritic serum had diphtheria. The nature of the disease, as well as the conditions attendent upon its development, have, however, made the results of the antitoxin treatment of tetanus far less favorable than was at first anticipated.

From what has already been said it is evident that the process of production of tetanus toxin, and its union with the motor cells of the spinal cord and medulla, begins as soon as infection occurs, and progresses until sufficient injury has been done to the motor cells to produce the symptoms of tetanus. It thus follows that in many cases the lethal dose of tetanus toxin has already been produced and absorbed before a diagnosis of the disease can be made. Experiment and clinical observation have further shown that antitoxin has practically but little effect upon the toxin already attached to the motor cells, and thus its function becomes mainly the neutralization of the toxin not yet thus attached, with a very slightly curative effect upon the deranged motor nervous system. It has also been shown that in many instances in man there is little or no tetanus toxin in the blood at the time of the development of symptoms, and very often at this time the tetanus bacilli have all disappeared from the portal of entry. All of the toxin has been absorbed by the central nervous system, and the benefit to be obtained from the antitoxin administered will be decidedly limited. It seems wise to emphasize these facts, that a more intelligent understanding may be had of the failure of antitoxin to act favorably in many cases of tetanus.

The natural conclusion from what has been said is that antitoxin should be administered as early as possible in the course of the disease, and best of all, in prophylatic doses, shortly after the injury may have been received.

It is very much to be regretted that among the different manufacturers of antitetanic serum there is no uniform standard by which the immunizing power is measured. In fact, it is absolutely impossible to obtain any idea whatever of the strength of some of the serum on the market. Hence, it follows that there has been and can be no uniformity of dosage, and a compilation of the statistics of the antitoxin treatment is unsatisfactory, because it is very apparent that in many cases far too little and far too weak antitoxin has been used, when if larger doses of more powerful serum had been administered the result might have been different. The standard adopted for diphtheria antitoxin has been eminently satisfactory, and there is no reason why a similar standard should not be adopted for tetanus antitoxin. It is to be hoped that in the near future some uniform method of standardization of both the tetanus toxin and antitoxin will be adopted, in order that the clinician may have some idea of how much of the therapeutic agent is administered.

It may be of interest to direct attention briefly to some of the statistics published relating to the antitoxin treatment of tetanus, although it must be borne in mind that statistics furnish a very unreliable foundation upon which to base any ideas regarding the value of certain methods of the treatment of disease. The tendency always is to report the favorable cases and to keep silent about the unfavorable ones. This is no doubt true of the cases reported in which antitoxin has been used in the treatment of tetanus. If all the cases in which antitoxin had been used were reported, irrespective of the result, it is probable that the mortality of the antitoxin treatment would be somewhat higher than the following statistics would make it appear.

Lambert in 1900 stated that the mortality of acute cases of tetanus not treated with antitoxin was about eighty-eight per cent., while for the sub-acute and chronic cases it was about forty per cent. He reported 262 cases which he had collected from the literature in which antitoxin had been used. Of this number 151 recovered and 111 died, a mortality of 42.36 per cent. Of this number 124 were acute cases, of which eighty-nine died and thirty-six recovered, a mortality of 71.77 per cent., while 138 were chronic cases, of which twenty-two died and 116 recovered, a mortality of 15.94 per cent. The mortality of acute cases was thus reduced from eighty-eight to seventy-two per cent., while that of the chronic cases was reduced from forty to sixteen per cent.

Moschcowitz in 1900 collected 338 cases of tetanus treated with antitoxin. Of this number 196 recovered and 142 died, a mortality of 42.01 per cent. This number represents practically all of the cases reported prior to 1900, for Moschcowitz made a most careful and exhaustive study of the literature.

Vallas in 1902 collected 373 cases from the literature which had been treated with subcutaneous injections of antitoxin, of which number 145 died, a mortality of thirty-nine per cent. This writer found that antitoxin produced the best results in cases where the incubation period was more than ten days.

Four methods of administration of the antitoxin have been proposed and practiced: first, the subcutaneous; second, the intravenous; third, the intracerebral, and fourth, the subdural. Each of these methods have had their ardent supporters, and only by a comparative study of the results obtained from each can an adequate idea of their relative efficacy be obtained. By far the largest number of cases have been treated by subcutaneous injection of the antitoxin, a smaller number by the intravenous and intracerebral methods, and a still smaller number by the subdural method. In most of the cases in which either of the latter three methods were employed the patient also received subcutaneous injections of antitoxin. Of the cases collected by Moschcowitz 290 were treated by subcutaneous or intravenous injections, with a mortality of

40.33 per cent Further analysis of these statistics showed that of thirty-three cases with an incubation period of less than five days nineteen recovered and fourteen died, a mortality of 42.42 per cent. Of 114 cases with an incubation period of from five to ten days fifty-two recovered and sixty-two died, a mortality of 54.38 per cent. Of sixty-four cases for an incubation period of ten to fifteen days fifty-two recovered and twelve died, a mortality of 18.75 per cent., and of twenty-four cases with an incubation period of over fifteen days twenty recovered and four died, a mortality of twenty per cent.

The total quantity of antitoxin used subcutaneously in the treatment of the cases has varied from five to eighteen hundred cubic centimetres, extending over a period of from a few hours to three or four weeks.

The intravenous injection of antitoxin was first done by Morax in 1893. Lemonnier has collected thirty-one cases from the literature in which intravenous injections were used, in which thirteen died, a mortality of 41.9 per cent. In twenty-four of these cases, however, subcutaneous or intracerebral injections were used in conjunction with the intravenous. Because of the unsatisfactory results in many cases of the subcutaneous or intravenous methods of administration, two methods were proposed, the object of which was to bring the antitoxin into more immediate contact with the central nervous system and in much stronger concentration. One of these methods was the intracerebral injection, proposed and practiced by Roux and Borrel, and the other was the subdural method, proposed and practiced by Blumenthal and Jacob. The first intracerebral injection was performed by Quenu, in 1898, and the patient recovered. The method employed was to make a small trephine opening into the skull over the frontal convolutions, through which a slender needle was introduced into the brain tissue, and from one to five cubic centimetres of antitoxin slowly injected. The enthusiasm over this method was extreme but short lived. At the end of 1898 sixteen cases had been reported to the Surgical Society of Paris. The method continued to be much employed during 1899, and to a lesser extent in 1900, since which time it has gradually passed out of use.

Lemonnier has collected seventy-six cases in which this method was employed, with a mortality of 65.7 per cent. Moschcowitz collected forty-eight cases in which intracerebral injection was practiced, with a mortality of 52.08 per cent.

Kocher has proposed and practiced in a few cases the injection of the antitoxin into the lateral ventricles of the brain, with apparently favorable results. The total quantity of antitoxin used intracerebrally has varied from five to seventy cubic centimetres, not more than ten cubic centimetres being injected at one time, while many of the cases have also received a total of from five to seven hundred cubic centimetres subcutaneously or intravenously. Careful study of the results of the intracerebral method of injection shows that they are not more favorable than those obtained by other methods, and it has furthermore been shown that this method is not altogether devoid of danger. Cases are reported in which serious accidents, and even death, have followed the employment of this method. Autopsies upon these cases have shown foci of hemorrhage or meningitis, and in at least one case cerebral abscess. The difficulties attendent upon this method of administration of the antitoxin place it out of the reach of the general practitioner.

The subdural method of injection is much simpler of execution, and so far as can be determined devoid of danger. Lumbar puncture is done between the third and fourth lumbar vertebræ, after the method of Quincke, and usually from five to twenty cubic centimetres of cerebrospinal fluid is allowed to escape, after which from five to twenty cubic centimetres of antitoxin is slowly injected.

There are comparatively few statistics relating to this method, although Vallas has collected twenty cases, with a mortality of sixty-five per cent. The most recent statistics relating to the comparative values of the different methods are those published in 1903, by Schuckmann. This writer has collected seventy-six cases treated with antitoxin, reported in the *Berliner Klinische Wochenschrift* and the *Deutsche Medicinische Wochenschrift* during the past three years. Of this number thirty-six recovered and forty died, a mortality of fifty-three per cent. Twenty cases were treated with intracerebral injections, with seventy-five per cent. mortality. Ten cases were treated with subdural injections, with twenty per cent. mortality; three cases were treated with intravenous injections, with sixty-seven per cent. mortality, and forty-three cases with subcutaneous injections, with forty-nine per cent. mortality.

These statistics seem to speak in favor of the subdural method, although the number of cases is comparatively small.

It may be of interest to note that an infection with tetanus, followed by recovery, does not confer a lasting immunity, as instanced by a case reported by Von Leyden, in which a patient developed the disease two years after recovery from a previous tetanus infection.

Brief mention should be made of the value of prophylatic injections of tetanus antitoxin in all cases where there is a suspicion that tetanus bacilli may have found access to the wound. A comparatively small dose, ten to twenty cubic centimetres, administered at the time of or shortly after the reception of the wound will suffice to protect the individual. This would appear to apply especially to Fourth of July wounds, as well as wounds contaminated with dirt, of those who reside in districts where tetanus is known to prevail. Brilliant results have also followed the use of tetanus antitoxin as a prophylatic in obstetrical practice, as well as in veterinary surgery.

Herhold, during the German campaign in China, made a routine practice of treating individuals with wounds contaminated with dirt with prophylatic doses of antitoxin, and none of the cases so treated developed tetanus, while certain cases not thus treated did develop the disease, which is quite prevalent in China, as well as in the tropics in general.

The subcutaneous injection of tetanus antitoxin appears to be devoid of danger, no serious effects having been observed, even after the use of large quantities. Frequently an erythematous or measly rash develops, which usually disappears in a few days.

Reference should be made to the carbolic acid treatment of tetanus proposed by Bacelli. For a long time this writer has used carbolic acid in subcutaneous injections for the treatment of neuralgia, neuromyalgia, and neuritis. It appears to act as an antiseptic antithermic, and moderator of the reflex excitability. Because of this therapeutic action Bacelli conceived the idea that it would be an excellent measure in the treatment of tetanus. The method of administration is the subcutaneous injection of from two to ten cubic centimetres of a two to three per cent. solution of carbolic acid several times in the course of twenty-four hours. Bacelli advises the use of large doses. Ascoli in one case injected seventy-two centigrams a day for seven days, and sixty centigrams a day for forty-one days. These doses seem to be well borne by the organism, which appears to enjoy an especial tolerance to drugs when infected with tetanus. This method has been used but little outside of Italy, although the Italians state that they have never observed severe symptoms of poisoning or even smoky urine. This method is of no apparent value in the treatment of experimental tetanus.

Vallas has collected eighty cases of tetanus from the literature treated by this method, with only eight deaths. Careful analysis of these cases, however, shows that many of the cases were extremely mild, and, then too, the fact must be borne in mind that practically only favorable cases were reported. Carbolic acid, however, should be regarded as a symptomatic treatment of value in conjunction with antitoxin.

The third indication to be met in the treatment of tetanus is the relief of the spasms. For this purpose a great number of sedative drugs have been proposed, but of the number morphine, chloral, and the bromides, have proven of greater value than all others. They should be administered in large doses, the morphine hypodermatically, and the chloral and bromides, as a rule, per rectum. The fact should be constantly borne in mind that the tetanic individual is endowed with an abnormal toleration for these, as well as all other sedative drugs. Amyl nitrite perls should also be at hand for administration in case of spasm of the glottis.

The fourth indication, the nourishment of the patient, is best obtained by means of nutrient enemata, unless it should be possible for the patient to swallow without serious discomfort. The use of subcutaneous infusion of large quantities of normal salt solution is also of value when the patient cannot take liquids freely by mouth or rectum. In this way secretion on the part of the kidneys and skin is encouraged and the elimination of ununited toxin, as well as the fatigue substances produced in the muscles accelerated.

The following cases recently treated by the writer are of sufficient interest to warrant their being reported in detail.

Case I. Mrs. C. G., aged thirty-five, was referred to the writer by Dr. Julian P. Hill, of Buffalo, N. Y. The patient had always been a strong, healthy woman, except that she had always been of an extremely nervous temperament. She had had three children, and her menstrual history had been normal. The patient last menstruated on March 12th. On May 8th, having passed two menstrual periods, and believing herself to be pregnant, she applied to a physician for relief from this condition. To produce an abortion a soft catheter was introduced into the uterus, and so far as the patient was able to observe, no antiseptic precautions were taken. The conditions in the doctor's office were extremely uncleanly.

Pain in the lower abdomen developed a few hours after this operation, accompanied by some hemorrhage from the uterus.

On May 9th she consulted Dr. Hill, who stated that she was flowing scantily. The temperature was 99.5°, pulse 100. On May 11th she was removed to the Riverside Hospital in Buffalo, her temperature being 102°, pulse 108. The same evening the membranes were passed, apparently intact. No fetus, however, was found. The temperature and pulse dropped after the expulsion of the membranes, and remained practically normal until May 17th, when the condition of the patient was so satisfactory that she was allowed to leave the hospital.

During the patient's confinement in the hospital the treatment consisted of antiseptic douches, sponge baths and alcoholic rubs. No intrauterine douches were used, and no intrauterine treatment, other than the introduction of one ichthyol fusoid into the cervical canal, the instruments used at this time having been carefully sterilized.

On the evening of May 17th the patient noticed some stiffness of the jaws, as well as some difficulty in swallowing. Both these conditions gradually grew worse until on Tuesday, May 19th, the jaws were perfectly rigid, and there was decided difficulty in swallowing, accompanied by spasms of the muscles of the jaws and throat when an attempt was made to take nourishment.

At eleven o'clock Tuesday evening the patient received the first dose of antitoxin, ten cubic centimetres of that provided by Parke, Davis & Company being injected subcutaneously every six hours for the succeeding forty-eight hours. Other than the possible retardation of the symptoms, Dr. Hill noted no change or improvement.

On Thursday, May 21st, stiffness of the muscles of the neck developed. Since her discharge from the hospital there had been no evidence whatever of any uterine disturbance.

During the night of May 21st the patient was brought to Albany, and admitted to the Albany Hospital at 8:30 A. M. May 22nd, having stood the journey from Buffalo very well and being apparently but slightly fatigued.

When seen at nine o'clock, she was found to be a strong, well developed woman, the skin and mucous membranes of good color. The heart, lungs, and abdominal viscera were apparently normal. The patient lay on the back with the head drawn somewhat backward, and with a slight risus sardonicus. Attempts to bend the head forward were resisted by rather marked stiffness of the muscles of the back of the neck and shoulders. There was marked fixation of the jaws, the patient being able to separate them only about one-half centimetre. The masseter and temporal muscles were very firm and rigid. Lateral motion of the jaws was practically impossible. There was some difficulty in swallowing. There was no involvement of the muscles of the trunk or extremities. The deep and superficial reflexes were exaggerated. There was no clonus. The patient complained most bitterly of thirst, and stated that attempts to take liquids caused spasms of the muscles of the face and throat. There were occasional spasms of the muscles of the jaws and neck. The temperature was 99°, pulse 100.

The patient remained fairly comfortable until one P. M., when the spasms became somewhat more frequent, and the patient was given 100 units, subcutaneously, of Behring's dried tetanus antitoxin. There was, however, but slight improvement in the frequency and intensity of the spasms. At 6:30 P. M. fifty cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously. There was no decided improvement, and the patient was very restless all night. She was, however, able to take nourishment in small quantities up to four A. M., May 23rd, when because of the soreness of the tongue and spasms of the jaws and throat, it became impossible to take any liquids.

The spasms became more frequent during the night and began to involve, in addition, the muscles of the upper part of the back and shoulders. They occurred at intervals of from twenty to thirty minutes.

In the early morning of May 23rd the spasms became more frequent, severe, and extensive, and involved the lower muscles of the back and hips, and occurred at intervals of from three to five minutes. At eleven A. M. 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously, followed in about an hour by slight improvement in the frequency, intensity and extent of the spasms. During the latter part of the afternoon the spasms again became more frequent, severe and extensive than they had been at any time, lasting from two to three minutes, and occurring at intervals of five minutes.

The patient's condition appeared to be extremely critical, and lumbar puncture was done, and fifty cubic centimetres of New York State Department of Health antitoxin injected into the subdural space. When the needle was introduced ten or twelve drops of dark, bloody fluid escaped. There were no unpleasant symptoms experienced by the patient during the injection of the antitoxin. The patient's condition remained about the same until 9:30 P. M., when the spasms became less frequent, severe and extensive, occurring only about every half hour, and involving for the most part the muscles of the hips. The patient slept at short intervals until one A. M., May 24th, when 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously.

The improvement continued until four A. M., when the spasms again became more frequent, occurring every twelve to fifteen minutes, and very severe in character. At this time the patient became nauseated, and the abdomen was markedly distended. The frequency of the spasms increased until eight A. M., at which time they occurred every five minutes, and involved practically all the muscles of the body, with marked opisthotonus and slight cyanosis. At eight A. M. 100 cubic centimetres of antitoxin were injected subcutaneously, followed in about an hour by some improvement. At eleven A. M. the spasms became more frequent and severe, and at one P. M. the patient's condition was again decidedly critical. Lumbar puncture was again done, followed by the escape of a few drops of bloody fluid, after which fifty cubic centimetres of New York State Department of Health antitoxin were injected into the subdural space, with no discomfort to the patient. Shortly after this injection the patient went to sleep and slept for one hour. There were no further spasms for a period of two and one-half hours.

At four P. M. slight spasms again began, and gradually increased in severity until nine P. M., when they were extremely severe, involved practically the entire body and occurred every five minutes. At this time lumbar puncture was again done and fifty cubic centimetres of New York State Department of Health antitoxin were injected into the subdural space, with no discomfort to the patient. This was followed by a marked lessening of the frequency of the spasms, although they still remained quite severe. The abdomen was much distended, and the patient complained of nausea.

At one A. M., May 25th, the spasms had become very severe, were almost continuous, the patient frothed at the mouth and was cyanosed. At 1:30 A. M., May 25th, 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously, and in about an hour the patient became quiet and comfortable. She slept at short intervals during the rest of the night, and the spasms, although still decidedly severe, were much less frequent.

At eight A. M., May 25th, the temperature was 101.2°, pulse 120 and of fair quality.

Since May 23rd the patient had been able to take practically no fluid by mouth and had been nourished by nutritive enemata every four hours. The secretion of urine being scanty, at twelve o'clock noon, May 25th, the patient was given an infusion of 1500 cubic centimetres of salt solution under the breast. Frequent high enemata of glycerine and salts were given, with some decrease in the distension and lessening of the nausea.

At four P. M., May 25th, the temperature was 103.4°, the pulse 116. The spasms were less frequent and severe during the greater part of the day, but in the latter part of the afternoon they again became more severe, and at 5:15 P. M. 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously. After this the spasms became very much better for a time, and the patient, although restless, was inclined to sleep at short intervals.

At 11:15 P. M. it was noticed that the patient's body was covered with a red erythetmatous rash which itched distressingly. This rash was most marked in the immediate vicinity of the subcutaneous injections of antitoxin. The patient passed a fairly comfortable night and slept at intervals of from ten to sixty minutes, the spasms being less severe and extensive.

The temperature at eight A. M., May 26th, was 101.6°, pulse 120. At this time the patient's condition seemed to be decidedly improved, and she began to take a small quantity of milk and water by mouth, although it was necessary for her to sit erect in order to swallow. At eleven A. M. the spasms again became quite severe and frequent, and occurred every one or two minutes. At times they were so severe that the patient had to be propped up in bed in order to breathe. She complained of special distress in the muscles of the chest. At 12 o'clock noon 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously. The spasms were slightly improved, but continued quite frequent and severe during the afternoon, and at four P. M. the temperature was 102.6° and pulse 110. At 5:30 P. M. 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously, followed in about two hours by decided improvement in the frequency and severity of the spasms. The patient, however, was very much distressed by the distension of the abdomen. She passed a fairly comfortable night, the spasms occurring at intervals of from fifteen to thirty minutes. The distension was relieved by frequent high glycerine and salts enemata.

The temperature at eight A. M., May 27th, was 101.4°, pulse 120. The patient's condition appeared to be decidedly improved. She was able to take a small quantity of milk and water by mouth, and the nutritive enemata were discontinued. The patient passed a fairly comfortable morning, but about twelve o'clock the spasms became more frequent and severe, and at 12:30 100 cubic centimetres of New York State Department of Health antitoxin were injected subcutaneously, after which the patient became somewhat more comfortable and the spasms less frequent. The distension of the abdomen was also much relieved. The temperature at four P. M. was 102°, pulse 116. The patient passed a fairly comfortable night, the spasms being much less severe, extensive and frequent, and lasting for only a few seconds. At four A. M. the patient was given 100 cubic centimetres of New York State Department of Health antitoxin subcutaneously.

For the past thirty-six hours the spasms appeared to have been most severe in the muscles of the abdomen and somewhat less so in the muscles of the chest, neck and face. The legs and arms were only slightly involved.

At eight A. M., May 28th, the temperature was 101.8°, pulse 118. The patient had passed an excellent night, having slept at one time for two hours without a single spasm. The general condition was decidedly improved and she was able to take nourishment by mouth fairly satisfactorily. The abdominal distension was much less, and the patient passed large quantities of gas per rectum. At four P. M. the temperature was 101.6°, pulse 108. The rash previously noted was somewhat less marked, although still extensive, and the itching was very annoying.

At eight A. M., May 29th, the temperature was 100.6°, pulse 116, and the patient had passed a very good night, having slept a total of several hours at short intervals. The spasms were comparatively slight, except in the muscles of the abdomen, where they still remained rather severe, although decidedly less frequent. The muscles of the jaws were still very rigid and the jaws fixed, although from the onset of the disease the jaws would relax somewhat during sleep. The patient passed a very comfortable day, took a good quantity of liquid nourishment and slept for short intervals. The temperature at four P. M. was 101.8°, pulse 113. The spasms occurred at intervals of from five to thirty minutes during the day, and were of comparatively slight severity.

At eight A. M., May 30th, the temperature was 100.6°, pulse 110. The patient had a very good night. She complained of severe pain in the right iliac fossa, as well as in the right lumbar region, in which regions the spasms appeared to be most severe and distressing. There was, however, no tenderness and no evidence of any intra-abdominal disturbance. The patient passed a good day, the temperature at four P. M. being 100.8°, pulse 116.

At eight A. M., May 31st, the temperature was 100.4°, pulse 110, and the general condition of the patient very much improved. She slept fairly well during the night for intervals of from ten to sixteen minutes. She complained of marked soreness and swelling of the tongue, due to the fact that she had bitten it several times during the spasms, but she continued to take increasing quantities of liquid nourishment and appeared very much stronger and better.

The temperature at four P. M. was 100.2°, pulse 118, and the patient had very few spasms during the day. It was noted at this time, as well as throughout the entire course of the disease, that any sudden noise or jar was very apt to provoke the spasms. The entrance of any one into the room almost invariably caused a spasm. Attempts to sit up and take nourishment also caused spasms.

During the last twenty-four hours the patient had taken seventy-eight ounces of nourishment, mainly milk.

June 1st, at eight A. M., the temperature was 100.4°, pulse 114, and the patient had had an excellent night, having slept in all about nine hours. The spasms were comparatively infrequent, and of very short duration. The temperature at eight P. M. was 101.6°, pulse 114.

June 2nd, at eight A. M., the temperature was 99.6°, pulse 110, and the general condition excellent. The patient had passed a good night, had slept about nine hours, and had taken a large quantity of nourishment.

The spasms were growing less frequent and severe, and involved practically only the muscles of the abdomen, the upper part of the back and the face. The jaws were still rigid and fixed, the patient being able to separate them only about one-half centimetre, although at times she was able to separate them as much as one centimetre. The muscles of the jaws did not appear to be quite so rigid, and the patient's general condition gradually improved. The rash over the body was slowly fading and the itching had, for the most part, ceased.

During the interval from May 22nd to May 29th, the patient was given frequent doses of chloral, twenty grains, bromide, thirty grains, per rectum, at times as often as three and four doses in twenty-four hours. This medication was, however, discontinued May 29th. During the entire illness there was a slight vaginal discharge of somewhat offensive odor, and since May 27th the patient had had two douches daily, of a solution of 1 to 5000 of bichloride of mercury. The bowels were satisfactorily moved with enemata and the secretion of urine was abundant.

June 3rd, twelve o'clock noon, the patient had been very comfortable for the preceding twenty-four hours, although there were a few mild spasms of the muscles of the face, arms and abdomen. The jaws were still rigid, but she took a large quantity of milk and slept fairly well. At seven P. M., June 3rd, the patient was given fifty cubic centimetres of State Department of Health antitoxin subcutaneously, with a view to relieve her of the mild spasms, and especially of the rigidity of the jaws. She had a fairly comfortable night, although the pulse became decidedly more rapid and very weak, ranging from 120 to 130. The temperature ranged from 98.4° to 100.4°. There were several slight spasms of the muscles of the face, arms and abdomen, and the patient bit the tongue twice during the night. She was given one-fiftieth grain of strychnine, hypodermatically, every three hours during the previous twenty-four hours, and on two occasions five minims of fluid extract of digitalis hypodermatically.

At 8:30 A. M., June 4th, the temperature was 99.2°, pulse 120. The temperature gradually rose during the day and at four P. M. reached 105° and the pulse 160. The patient's condition at this time appeared to be most desperate, the respirations were rapid and shallow and the pulse extremely weak. She was given 1500 cubic centimetres of salt solution subcutaneously at seven P. M., with marked improvement in the character and quality of the pulse. She passed a fairly comfortable night, although the temperature remained elevated, ranging between 103 and 104°, and the pulse from 134 to 148. The spasms were very infrequent and slight, but the rigidity of the jaws remained practically the same.

The patient received six-twenty-fifths of a grain of strychnine and twenty-two minims of the fluid extract of digitalis, hypodermatically, in the twenty-four hours ending at ten A. M., June 5th. Careful examination of the patient at this time failed to reveal any demonstrable cause for the fever. The heart sounds were clear, as were the lungs, and there was absolutely nothing to be detected in the abdomen in any way abnormal.

The patient's temperature remained elevated until June 14th, ranging from 100 to 104.2°, although showing a slight disposition to become lower each day. The pulse remained very rapid and weak until June 8th, ranging from 108 to 140.

On the evenings of June 5th, 6th and 7th the patient was given 1500 cubic centimetres of salt solution subcutaneously, each time followed by a marked improvement in the character of the pulse. During the period from June 5th to June 14th the patient had occasional slight spasms of the muscles of the face, arms and abdomen, but the frequency and intensity of these gradually diminished, until on June 14th she was practically free from all spasms. The rigidity of the jaws gradually lessened, and on June 14th she was able to separate them fully one and one-half centimetres. During the ten days of elevated temperature frequent physical examinations were made, but at no time was it possible to detect any assignable cause for the fever. She took large quantities of liquid nourishment and slept fairly well.

At twelve o'clock noon, June 6th, the patient was given fifty cubic centimetres of New York State Department of Health antitoxin subcutaneously, with a view to inducing relaxation of the muscles of the jaws. This was apparently followed by but a very slightly beneficial result.

From June 8th to June 14th the patient's pulse gradually improved, and remained for the most part in the vicinity of 100. She slept well, took large quantities of milk and fluids, and voided large quantities of practically normal urine. There was a very slight muco purulent vaginal discharge.

June 12th the patient was able to eat some custard and jelly, and gradually took more and more soft food. On June 14th the temperature ranged from 99.6 to 100.6°, the pulse from eighty-four to 108. Her general condition had gradually improved.

During the succeeding days, from June 14th to June 23rd, the patient's general condition rapidly improved. The temperature became practically normal by June 16th, and the pulse ranged from eighty to 100. She took large quantities of nourishment, including considerable solid food.

The muscles of the jaws relaxed gradually, so that by June 16th she was able to masticate meat and could open the jaws almost as far as normally. She slept well and gained rapidly in strength. She sat out of bed for several hours each day, and on June 19th began to walk around the ward. At the time of her discharge from the hospital on June 23rd practically all vestiges of tetanus had disappeared. There was no appreciable rigidity of the muscles of the jaws, the patient's appetite was remarkably good, she slept all night, and the pulse and temperature were practically normal. She complained of some soreness in the muscles of the hands and arms, as well as those of the jaws, especially after slight exercise of those muscles. There was no apparent functional disturbance of any portion of the neuro-muscular apparatus. Careful bi-manual examination showed the pelvic viscera to be in practically normal condition. The heart sounds were perfectly clear and normal. Aside from some general weakness, the patient appeared at the time of her discharge from the hospital to be practically normal.

During the two days she was under treatment in Buffalo the patient received eighty cubic centimetres of P. D. & Co.'s antitoxin, subcutaneously, and during the succeeding two weeks at the Albany Hospital she received 100 units of Behring's dried antitoxin, and 1050 cubic centimetres of New York State Department of Health antitoxin subcutaneously and 150 cubic centimetres subdurally. The largest quantity administered in any twenty-four hours was 300 cubic centimetres subcutaneously and fifty cubic centimetres subdurally.

Case I presented a number of extremely interesting features. In the first place, it was a case of puerperal tetanus, with an incubation period of only nine days, conditions which would appear to make the prognosis hopeless. In the second place, the infection was accompanied by a high temperature, which is also usually regarded as of the gravest significance. In this connection it is of interest to call attention to the extreme elevation of temperature and pulse, which occurred at a time when the symptoms of tetanus were decidedly in abeyance, and which continued for eleven days, unaccompanied by any discoverable condition to explain the high temperature.

In the third place, especial attention should be directed to the remarkable benefit which followed the use of antitoxin, which was injected in large doses.

Another striking feature was the most marked improvement which followed the subdural injection of antitoxin, which was practiced three times within a space of twenty-seven hours.

Each time that this measure was resorted to the patient appeared to be in extremis, and each time there was a great improvement in all the symptoms, in from one to three hours after the injection. The quantity of antitoxin introduced into the subdural space at one time, fifty cubic centimetres, was far in excess of the amount ever injected before, so far as can be learned from the literature, and yet it was accomplished without the least untoward effect.

It is the writer's firm conviction that this measure alone saved the life of the patient, although of course the large quantity of antitoxin used subcutaneously was of unquestioned benefit.

Case II. W. M. S., aged fifty-seven, a stone cutter by occupation, was referred to the writer by Dr. E. A. Bartlett, of Albany, N. Y. He was admitted to the Albany Hospital on Friday, May 22nd, at six P. M. The patient had always been a strong, healthy man and had never been ill in his life.

On May 11th the patient, while walking in his yard, in the suburbs of Albany, stepped on a small wire nail, which passed through a rubber boot which he wore, and entered the right foot, near the heel, for about one and one-half centimetres. The nail was immediately withdrawn, and inasmuch as the wound appeared to be so insignificant no attention was paid to it at first. The day after the injury the foot became somewhat swollen in the region of the wound, and so painful that the patient could not walk upon it. Poultices were then applied, but there was at no time any discharge. The swelling and soreness gradually decreased until it had practically disappeared. The patient's general health remained apparently good.

At nine A. M. on May 21st, ten days after the reception of the injury. the patient was taken with a severe pain in the back, especially marked in the back of the neck, with some retraction of the head. Shortly afterwards he noticed some stiffness of the jaws. and pain in the muscles of the jaws when he attempted to masticate. The pain and stiffness gradually became more marked, and on May 22nd the patient also developed difficulty in swallowing. the jaws having become so stiff that mastication was impossible.

When seen at seven P. M. May 22nd, the decubitus was dorsal, the color good, pulse eighty, temperature 98.6°. heart. lungs and abdomen normal. There was well marked spasm and rigidity of the muscles of the jaw, and the patient was able to separate the jaws only about one centimetre. There was also distinct spasm and rigidity of the muscles of the back of the neck and upper part of the back, with some retraction of the head. The involved muscles presented occasional spasms, and slight risus sardonicus was also noted. There was slight difficulty in swallowing. The patellar tendon reflexes were somewhat exaggerated. There was slight tenderness about the right heel, although no definite wound or scar could be detected.

At 9:30 P. M. the patient was given fifty cubic centimetres of New York State Department of Health antitoxin subcutaneously, and at three A. M., May 23rd, another dose of fifty cubic centimetres was injected subcutaneously, the rigidity of the muscles having increased progressively, and the muscles of the back being more extensively implicated. The patient was able to take liquids only with much difficulty. This difficulty gradually increased until, at eleven A. M., May 23rd, it was impossible to take nourishment by mouth.

At twelve noon, May 23rd, lumbar puncture was done, and twenty cubic centimetres of antitoxin injected into the subdural space. There was no escape of cerebro-spinal fluid when the needle was introduced into the subdural space. Within an hour the spasms had become decidedly less frequent, less severe and less extensive; there was much less rigidity of the muscles, and the patient was again able to swallow liquids. At 1:30 P. M. 100 cubic centimetres of antitoxin were injected subcutaneously. The patient's condition improved during the afternoon, the spasms being decidedly less frequent; the rigidity less marked and the patient being able to sleep for an hour at a time. At six P. M. 100 cubic centimetres of antitoxin were injected subcutaneously, followed by continued improvement. The patient was able to take nourishment and slept for two hours, with lessened rigidity and infrequent spasms. At one A. M. 100 cubic centimetres of antitoxin were injected subcutaneously and the patient continued comfortable until morning.

At nine A. M., May 24th, the rigidity was somewhat more marked and the spasms more frequent. One hundred cubic centimetres of antitoxin were injected subcutaneously, but practically no improvement followed, the spasms constantly becoming more severe, more extensive and more frequent. At this time practically all of the muscles of the back were involved and there was also some rigidity and spasm of the muscles of the legs.

At twelve o'clock noon, May 23rd, the patient's condition was most critical. The spasms were very frequent, very extensive and very severe, involving the muscles of the face, neck, back, arms and legs, and occurring at intervals of about two minutes. There was marked opisthotonos, with loud gritting of the teeth. The risus sardonicus was most marked and the patient's pulse was 110. He was unable to take any nourishment and there was some cyanosis. At twelve o'clock noon lumbar puncture was done and fifty cubic centimetres of antitoxin were injected into the subdural space. Forty-five minutes after this injection the patient's condition was decidedly improved, the patient was fairly quiet, the muscular spasms much less frequent, less severe and less extensive, occurring only at intervals of from four to seven minutes. At three P. M. 100 cubic centimetres of antitoxin were injected subcutaneously and the patient continued to improve, was able to take nourishment and slept at short intervals. The spasms were very much less frequent and the rigidity less. At 6:30 P. M. the spasms again became more severe and the rigidity more pronounced. This condition gradually grew worse until, at eight o'clock, there were generalized convulsions involving practically all the muscles of the body, with the most pronounced opisthotonos. The spasms occurred at intervals of from one and one-half to two and one-half minutes, and were associated with marked cyanosis and difficulty in breathing. At eight P. M. lumbar puncture was again done and fifty cubic centimetres of antitoxin were injected into the subdural space. The spasms became somewhat less severe and somewhat less frequent and the patient appeared to have improved, although there was still very marked rigidity. At 12:30 P. M. the patient was seized with a specially severe spasm and died very suddenly, without any cyanosis or any evidence of asphyxia. Death appeared to be due to sudden failure of the heart.

Upon two occasions during the course of the illness the patient was given fifteen grains of chloral and thirty grains of bromide, but without any apparent benefit. There was no apparent discomfort associated with the intradural injection of the antitoxin and no apparent effect upon the pulse or general condition.

At seven o'clock on the evening the patient died he was given 2000 cubic centimetres of salt solution subcutaneously, but, apparently, with no beneficial result. In the space of forty-eight hours, during which the patient was under treatment with the antitoxin, he received 600 cubic centimetres subcutaneously and 120 cubic centimetres in the subdural space.

An autopsy was performed eleven hours after death, by Dr. Laird, of the Bender Hygienic Laboratory. The anatomical diagnosis was:

"Tetanus traumaticus, resulting from a nail puncture of right heel. Slight congestion of spinal cord and brain. Congestion and œdema of both lungs. Healed tuberculosis of both lungs, with chronic adhesive pleurisy. Acute spleen tumor. General arterio-sclerosis, with coronary artery disease. Right inguinal hernia. Right hydrocele."

Of especial interest was the condition of the subdural space, into which such large quantities of antitoxin had been injected. The lumbar muscles through which the needle passed were practically normal. The point of entrance of the needle, into the subdural space, was marked by a very small opening in the dura, discovered only after careful search. The lower portion of the cord, as well as the nerves and the membranes, appeared perfectly normal, nor was there any undue congestion of the vessels in this region. The cervical region of the cord was somewhat congested, but otherwise the central nervous system presented practically a normal appearance.

The tissue about the wound in the heel was carefully excised and examined, and a small area of necrosis was found about one and one-half centimetres from the surface. Coverslips from this showed only a coccus, and cultures showed the staphylococcus pyogenes aureus.

Anaerobic cultures were negative so far as tetanus bacilli were concerned.

Portions of the necrosed tissue were inoculated subcutaneously into guinea pigs without result.

Guinea pigs were also inoculated with the patient's heart blood, but these animals died from a secondary infecting micro-organism present in the blood, without any definite evidence of tetanus.

This was a case of extremely acute tetanus, in which treatment with antitoxin was not instituted until thirty-six hours after the onset of the symptoms, and hence the prognosis was very bad. Of especial interest, however, was the extremely beneficial effect which followed the subdural injection of antitoxin, and furthermore, it is to be noted that the injection of fifty cubic centimetres into the subdural space was accomplished without the least apparent harm to the patient.

Of especial value are the autopsy findings in this case, which seem to show conclusively that as much as fifty cubic centimetres of antitoxin can be introduced into the subdural space without the production of any demonstrable anatomical lesion.

Case III. B. M. S., aged fourteen, was referred to the writer by Dr. J. R. Davidson, of South Bethlehem, N. Y.

The patient had never been very strong, although at the time of the accident she was in a fair state of health.

On June 27th the patient, while walking about a barn at her home in South Bethlehem, ran a rusty wire nail about one and one-half centimetres into the ball of the left foot, just between the first and second metatarsal bones. The nail was immediately withdrawn, and the wound bled very freely. A piece of salt pork was applied for some hours, after which flaxseed poultices were applied for three or four days. The region of the wound was somewhat swollen and tender for five or six days, but the tenderness and soreness gradually diminished, until at the end of one week she could walk with practically no discomfort. There was at no time any pain or discomfort in the leg or in the groin. The patient's general health remained as usual until Saturday, July 4th, when in the afternoon, practically seven days after the injury, she noticed some stiffness of the jaws which made it difficult for her to masticate. There was at this time no muscular stiffness and no other symptoms of any serious disturbance. The stiffness of the jaws became somewhat more marked during Saturday night and Sunday, and in addition, Sunday afternoon, July 5th, there was slight stiffness of the neck, with some rigidity of the left foot and leg below the knee, the foot being drawn into a position of equino varus. Sunday night the patient was given twenty cubic centimetres of P. D. & Co.'s tetanus antitoxin subcutaneously, with no appreciable benefit. The symptoms became somewhat more aggravated during the night, and at ten A. M., Monday, July 6th, the patient was brought to the Albany Hospital.

The examination at the time of admission showed a rather anemic, somewhat undersized girl, expression anxious, pulse 108, temperature 99.8°. There was rather marked rigidity of the muscles of the jaws, although the patient could separate the jaws about one centimetre. There was also some rigidity of the muscles of the back, with a very slight tendency to opisthotonos, and risus sardonicus was present. The left foot was held in a position of equino varus, due to the pronounced spasm of the muscles of the foot and leg below the knee. The right foot and leg was normal. Movements at the ankle joint of the right foot and leg were practically impossible, while the movements at the hip and knee were normal. The patellar tendon reflexes were greatly exaggerated. On the ball of the left foot, just between the first and second metatarsal bones, was a small punctured wound, practically healed. There was no tenderness on pressure about this wound.

The patient was given fifty cubic centimetres of New York State Board of Health antitoxin subcutaneously at 10:30 A. M. At eleven A. M. the patient was operated upon under ether.

The operation consisted in the excision of all the tissues surrounding the punctured wound in the foot, for a radius of approximately three centimetres. An interesting fact observed was that the local spasm in the left foot and leg, while diminished, was nevertheless present under ether. The wound was dressed with hot bichloride packs, which were changed every two hours. Prior to the operation, the patient was able to swallow liquids fairly well, but had not been able to take solid food since Saturday, July 4th.

The patient recovered from the operation satisfactorily, although the spasms of the muscles became more severe and extensive. At two o'clock P. M. there was well marked rigidity of the muscles of the back, with more pronounced opisthotonos and fairly frequent convulsions, rather moderate in severity. At 4:30 P. M. the patient was given fifty cubic centimetres of State Department of Health antitoxin, with little apparent benefit. At six P. M., there being still marked rigidity of the muscles of the jaws and neck and back, as well as of the left leg, with fairly frequent spasms of these muscles, lumbar puncture was done, and fifty cubic centimetres of State Department of Health antitoxin injected into the subdural space. This was followed by some relaxation of the rigidity of the muscles, and a decided diminution in the frequency of the spasms, and the patient seemed somewhat more comfortable. It was, however, difficult for her to swallow. At eight P. M. the temperature was 103.2°, pulse 126, and the patient was given fifteen grains of chloral and twenty-five grains of bromide per rectum. During the afternoon and evening she had taken a moderate quantity of liquids, but there was progressively more difficulty in swallowing. At ten P. M. the patient was fairly quiet, but the spasms occurred at intervals of about three minutes. At this time fifty cubic centimetres of tetanus antitoxin were injected subcutaneously, after which the patient slept for twenty minutes, with no twitching and less rigidity.

Her temperature at twelve o'clock midnight was 102.4°, pulse 120. At 1:40 A. M. the rigidity of the muscles had become decidedly more marked and the spasms more frequent and severe, and lumbar puncture was again done and fifty cubic centimetres of antitoxin injected. Another dose of chloral and bromide was given per rectum. There was practically no benefit following this, the spasms became more marked and more severe. At four o'clock the temperature was 107.6°, pulse 134, and the patient's condition extremely grave. At this time she was given fifty cubic centimetres of New York State Department of Health antitoxin subcutaneously, with practically no beneficial result.

At five o'clock A. M. the temperature was 108°, pulse 142, and the patient was unconscious, the spasms occurring at intervals of a few seconds. At seven o'clock the temperature was 108.4°, pulse 150, and patient was given fifty cubic centimetres of tetanus antitoxin, subcutaneously, but without any effect. At this time the patient lay on the abdomen, and the head and legs were both drawn markedly backward.

At 7:45 A. M. the temperature was 109°, and the patient's condition was growing rapidly worse. Patient died at 8:05 A. M., fairly quietly, apparently from heart failure, death occurring between the spasms.

During the twenty-two hours the patient was in the hospital she received 250 cubic centimetres of New York State Department of Health antitoxin subcutaneously, and 100 cubic centimetres subdurally.

The tissue removed at the operation was examined by Dr. Blumer, at the Bender Hygienic Laboratory, who reported that there was a distinct area of necrosis surrounding the wound made by the nail, but no evidence of pus. Coverslips from this necrosed tissue were negative. Portions of the necrosed tissue were placed in nutrient media under anaerobic conditions, but no bacterial growth occurred. Other portions of the necrosed tissue were inoculated into guinea pigs, but with negative results, the health of the pigs being in no way impaired.

This case was also of an extremely acute type, and antitoxin treatment was begun late—thirty-six hours after the first manifestation of symptoms; facts which made the prognosis bad. The antitoxin also appeared to have a less beneficial effect than in either of the other two cases, although large quantities were used. The subdural injections of fifty cubic centimetres were accomplished without any evident disturbance.

Of especial interest is the presence of a well marked local tetanus, which is so uncommon in the human individual, and which was not entirely relaxed under ether.

From a study of the literature, as well as from his own personal experience, the writer feels convinced that the antitoxin treatment of tetanus, while unsuccessful in many cases, is nevertheless productive of far better results than any method hitherto proposed.

The subcutaneous method of administration would appear to be the most generally applicable, but it should also be supplemented in severe cases, by the subdural injection of antitoxin, which has been demonstrated to be without danger in doses as large as fifty cubic centimetres.

Large quantities of antitoxin should be available for administration, but this is only too often not the case. The expense, too, of the same makes its use in sufficient quantities to be of any value practically impossible in many instances. This difficulty has been most admirably met in New York State by the establishment of an antitoxin laboratory, in connection with the State Department of Health, which is prepared to furnish antitoxin in practically any quantity desired. It is entirely owing to this fact, and the liberal co-operation of Dr. H. D. Pease, director of this laboratory, that the writer was able to obtain the large quantities of serum used in the treatment of the cases reported, and it is only fair to say that this laboratory was responsible for the recovery of Case No. I.

A PLEA FOR THE RATIONAL ADMINISTRATION OF CHLOROFORM AS A ROUTINE MEASURE IN LABOR.

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Almost all modern obstetricians use some form of anæsthetic during the conduct of their labor cases, some as a routine measure and some occasionally. The benefits from their employment in such cases are so palpable and beyond dispute, that it is not my intention to here discuss that question at great length, but to make an appeal for the *rational* administration of chloroform instead of ether in obstetric practice. While in surgical anæsthesia our object is to totally abolish the sensibilities, in labor the object is merely to blunt them. As Jewett says, "The use of anæsthetics for this purpose is justified on both humanitarian and scientific grounds. It is not only the plain duty of the obstetrician to relieve the needless sufferings of his patient, but the judicious employment of anæsthetic agents spares her unnecessary exhaustion."

The first and most frequently reiterated arguments of the opponents to the use of chloroform as an anæsthetic in labor, is the almost universally acknowledged fact that in ordinary surgical procedure, chloroform is much more dangerous to life than is ether; that this is *not* the case in obstetric practice is almost as universally conceded. Williams, who holds that when obstetrical operations are to be performed, it is a matter of indifference which is employed, chloroform or ether, says that it is well known that the dangers incident to chloroform, "are markedly reduced at the time of labor, and that only a very few deaths have followed its use under such circumstances." Why the parturient woman should be thus immune has been widely discussed and is not yet definitely settled. Other objections advanced by the ether advocates and by those opposed to the use of any anæsthetic are, that the use of chloroform, or in fact any anæsthetic, adds considerably to the responsibility and trouble in obstetric work; that chloroform narcosis hinders uterine contractions and thus predisposes to post-partum hemorrhage, this last proposition having originated with the Continental school of obstetricians.

In order to intelligently discuss these objections and to aid us in our endeavor to find a reason for this remarkable immunity of the parturient woman to the poison of chloroform, let us first consider the physiological effects of chloroform in both medicinal and toxic doses:

Chloroform was discovered by Mr. Samuel Guthrie, of Sackett's Harbor, N. Y., in 1831, and about the same time by Soubeiran in France, and Leibig in Germany. In March, 1847, the action of the pure substance by inhalation was tried on the lower animals by M. Flourens, and its effects on the spinal marrow described. In November of the same year, Dr. Simpson of Edinburgh, after experimenting with a number of anæsthetic agents in order to discover a substitute for ether, tried chloroform at the suggestion of Mr. Waldie, and having found its effects favorable, brought it forward as a new remedy for pain, by inhalation in surgery and midwifery. (It is claimed, I believe, although I can not quote my authority, that chloroform was first used in labor by Professor Henry Miller, of Louisville). The advantages which Simpson believed it to possess over ether were the smallness of dose, its more prompt action, more agreeable effects, less tenacious odor, greater cheapness, and greater facility of exhibition.

Edward Curtis, in a study of anæsthetics, describes chloroform narcosis as follows:—"The essential phenomena of chloroform narcosis all result from a direct action of the poison upon the nerve centres of the brain and spinal cord and upon the heart, or its contained ganglia—an action which in the main is one of progressive paralysis of function. The brain is disturbed before the cord, and of the tracts of the cord, the sensory suffers earlier and more severely than the motor. The centres of the medulla succumb last, and again the motor tract resists longer than the sensory, the respiratory and vaso-motor centres holding out the very longest. Chloroform has but little action on the nerves, or except in the case of the heart, upon the muscles unless the narcosis has been prolonged or repeated."

The Hyderabad Commission reaffirmed the proposition that the pathology of chloroform collapse is never a primary cardiac paralysis, but that death always commences in the centres of the medulla and Hare asserts that, "the chain of cause and effect in chloroform collapse is *primary paralysis of the vaso-motor centres* whereby vascular control wholly disappears, the blood collects in the veins, and the subject dies as he would die from actual hemorrhage, by failure of respirations and of the heart through lack of blood to nourish the respiratory centre on the one hand, and excite and maintain the contractions of the heart on the other." Raymond Crawford, probably as well known in England as Hare is in this country, makes the assertion that: —(1) Chloroform raises the excitability of the vagus mechanism, particularly in the early part of administration. (2) Chloroform markedly lowers the blood-pressure to which failure of respirations is due, and says, "With good blood-pressure, failure of respirations by inhalation of chloroform *is practically impossible.*"

Some of the strongest advocates of the use of chloroform in labor give as a reason for the immunity of the parturient woman, the fact that as a rule, only a small amount of chloroform is used at a time, the drugs being used intermittently and hence the toxic or paralyzing effect is not produced. Playfair says, "This intermittent administration constitutes the peculiar safety of chloroform in labor." While this undoubtedly may make a difference, on the other hand, statistics show that a majority of the deaths in chloroform anæsthesia, administered for surgical procedure, occur in the early stages of the administration of the drug, and frequently when the patient has taken but one or two inhalations; that this is not the case when administered during the second stage of labor is fully as well a known fact, therefore we must seek further for a reason. Dr. J. A. Bodine, who believes that chloroform is much more safe in obstetric practice than ether, calls attention to the fact that most deaths from chloroform are due to vaso-motor paralysis and that deaths from fright occur in just the same way. He asserts that seventy per cent of the cases of death during chloroform anæsthesia occur during the primary stage when usually but a few drops of the drug have been given. After citing cases to prove this contention, he gives as a reason for the immunity from danger in the woman during confinement, that women are not fearful about an anæsthetic at such a time, but beg for its use. This contention of Bodine's is by no means a new one as the same idea was advanced by Simpson, Snow, Brodie and Cooper, and by Dr. R. D. Rudolph, of Toronto in a monograph entitled, "Observations on Blood Pressure, with Special Reference to Chloroform." That this reasoning is fallacious, most careful observers will agree, for no one who has used chloroform in obstetric practice with any frequency, can fail to recall many instances where a woman who has never experienced the heavenly sensation of amelioration of pain, attendant on the use of chloroform in the second stage of labor, has objected to its use on account of fear for the results; neither can he fail to recall that in all her subsequent confinements, her first question is, "doctor, you will be sure to give me chloroform, won't you?" H. W. Dudley presents a reason for immunity, alike ingenious and improbable. He ascribes the deaths in chloroform narcosis to the concentration of the vapor in the alveoli and then advances these two propositions: (1) In the parturient the central nervous system is in a state of congestion; (2) in both the pregnant and the parturient, movement of the diaphragm is greatly restricted because of abdominal distension; therefore breathing is necessarily shallow. As a consequence, chloroform would have to be given in very concentrated vapor, indeed, to prove dangerous to the patient, for it must be greatly diluted with the residual air of the lungs previous to absorption and, in such cases, the shallow respirations would make it practically impossible to overwhelm the patient with an overdose in a few respirations. Herbert O. Collins advances the theory that deaths from chloroform are due to vaso-motor paralysis, and as pregnancy increases vaso-motor tension, pregnant women are less liable to its injurious effects.

My own belief is, and I advance the theory, that the true explanation of this remarkable immunity from danger, of this divine gift to suffering woman by which she can ameliorate the pangs of maternity, lies in contrasting the conditions of the circulatory and respiratory systems in labor on the one hand and in chloroform narcosis on the other. In chloroform narcosis there is a marked lowering of the arterial tension, consequently a diminished blood supply, not only to the heart and its contained ganglia, interfering with its function, but a deficient blood supply to the vaso-motor and respiratory centres in the medulla as well and death sooner or later ensues as a direct result of paralysis of the respiratory centre, which in turn has been produced by a deficient blood supply. *During the progress of labor*, however, the arterial tension is very greatly raised; the pulse becomes accelerated during, and slower in the intervals between the pains; the respirations slower during contractions and more rapid between them, the vaso-motor centre and the respiratory centre are thus both much more fully supplied with blood, and secondarily the heart itself has an increased supply. It is readily seen that here we have a condition, normally present in the parturient woman that is absolutely antagonistic to the toxic and dangerous effects of chloroform, thus at every danger point, nature has put a guard.

As to the contention that chloroform narcosis hinders uterine contractions and thus predisposes to uterine hemorrhage, there is but little, if any trustworthy clinical evidence. It may be true that, as certain French investigators claim, the uterine contractions are really diminished in number and intensity in direct proportion to the amount of the drug inhaled, but it is believed by a majority of observers that the reduction in the expulsive force is much more probably due to a mere paresis of the abdominal muscles and to no interference with the uterine muscle. Dr. T. W. Parkinson of London, in an article in which he most warmly defends the drug against "the insinuations and accusations of which it has been the object for so many years," makes a strong plea for its routine use in labor. Dr. Parkinson says that he has never seen a case of post-partum hemorrhage associated with the rational use of chloroform, and for myself, I can say that in a practice extending over seventeen years, and in eleven of which I have attended nearly one thousand confinements and seen many cases in consultation, I have never seen a case in which I could attribute post-partum hemorrhage, or in fact, any untoward condition, to the use of chloroform and it has been my routine practice to administer it in every case during the second stage of labor unless positively forbidden on account of religious scruples on the part of the woman or her husband.

It is quite generally believed that chloroform is not only more efficacious but safer in controlling the convulsions of puerperal eclampsia and Dr. Douglas H. Stewart advances so unusual a reason for this that it is worth giving here. He starts out with the trite statement that sugar is an antiseptic and shows how, of two samples of urine in test-tubes, one containing sugar and one without, the former will be preserved from alkalinity for six days longer than the latter. This alkalinity is supposed to be due to carbonate of ammonia and one of the elements in the toxemia of puerperal eclampsia is the changing of urea into carbonate of ammonia. Chloroform produces a temporary glycosuria, "and if we have glycosuria, is it at all far-fetched to assume that we must have glucose (dextrose) in the blood? If we admit the presence of this sugar in the blood, we can easily demonstrate by our test-tube that it does prevent the changing of urea into ammonium carbonate. No doubt every physician will bear me out in the statement that while severe grades of diabetes are often complicated by grave forms of renal disease; uraemic convulsions are very rare. Perhaps the reader, like myself, has been surprised that in a diabetic all the conditions may be apparently right for the convulsion, but it never occurs unless there is an epileptic history. Admitting the above, does it not seem that chloroform with its accompanying glycosuria is the anæsthetic *par excellence* in puerperal convulsions? Not that it will inhibit the development of all the poisons in the toxaemia; but it will limit the production of the chief one."

All authorities are agreed that the chloroform should be withheld until the second stage of labor is well advanced. Jewett says, "so long as the pains are well borne without it," and Williams, "until the head becomes visible at the vulva, or at least until the perinaeum begins to bulge." I believe, however, that small doses are of great value in causing relaxation of a rigid os uteri and thus shortening a prolonged labor. The cardinal rule in chloroform anæsthesia is, as is of course the rule in the administration of any anæsthetic, to give the least possible amount to produce the desired effect, that is, at first a lessening of the actual pain, and later a retardation of the force and frequency of the pains when more is given in order to aid in the protection of the perinaeum and the entire parturient canal. Different methods are recommended by different obstetricians, some using some one of the many inhalers and others simply using a folded napkin or handkerchief, held several inches away from the nose; my method is what, for want of a better name I have called, the tumbler method, a method first described by De Laskie Miller; a common tumbler with thick sides and heavy bottom, such as may be found in every kitchen is used; in the bottom of this is placed a woman's handkerchief or a bit of gauze or cotton and a small strip of pine wood is sprung across this to retain it in position; a few drops of chloroform from a dropping bottle are put on the handkerchief and the tumbler is held close to the patient's face, covering the mouth and nose, or in the absence of an attendant, as so often happens in country practice the patient may hold the tumbler herself, the shape of the tumbler and the configuration of the face allowing a sufficient amount of atmospheric air to mix with the chloroform. By this means there is no danger of the chloroform coming in contact with the patient's lips nor is there danger of giving an overdose, for in the first place but two or three drops at the most have been given and this mixed with atmospheric air, and even if the patient is holding the tumbler herself, the moment that a sufficient amount has been inhaled, the muscles will relax and she will drop the tumbler by her side. The chloroform should not (until the very end) be given between the pains but at the commencement of the pain in order to obtain a beneficial effect, for as the pain gains in force and intensity, the abdominal muscles become fixed and respirations practically, if not quite, cease until the pain is finished. If it is thought necessary to increase the anæsthetic effects of the drug, the patient may be told to breathe deeply as the inhalation begins. The result of this method is that the pause between the pains is *at first* a little longer, but soon their regular rythm is restored and no difference can be discovered in either their frequency or expulsive force. At the end of the second stage, when the presenting part begins to pass through the vulva, the chloroform should be pushed to a surgical degree, not only "sparing the woman," as Jewett says, "the severer pangs of labor, but by retarding the expulsion and by relaxing the muscular structures of the pelvic floor, lessening the risks of laceration of the vaginal outlet." Winckel believes that chloroform is of greatest value when the cervix is almost dilated and when the presenting part begins to pass through the vulva. Of this period Williams says, "When the distension of the vulva is at its maximum, obstetrical anæsthesia is not sufficient to abolish the pain, and it is my practice, as the head emerges, to render my patient completely unconscious for the moment by increasing the dose of the drug. By this procedure the woman is saved an immense amount of unnecessary pain, and at the same time the danger of perinaeal laceration is diminished. For if the suffering is minimized, and done away with at the critical moment, the patient will lie still instead of tossing in her bed, and there will not be the same danger of the head being suddenly expelled at the acme of contraction, while the physician is employing his energies in persuading the patient to keep quiet, or may even be forcing her legs apart so that he may be able to protect the perinaeum. The amount of chloroform required for this purpose is very small, and rarely exceeds two or three drams."

As a rule, unless it is found necessary to remove the placenta manually or a perinaeal laceration is to be repaired, no anæsthetic is necessary in the third stage and the woman recovers from the anæsthetic almost immediately. As to the teaching of many of the older authorities, notably Lusk, that if an anæsthetic is required in the third stage, ether is preferable as all the physiological conditions obtaining during the first and second stage are altered and ether is thus, theoretically at least, more safe than chloroform, I am not prepared to give an opinion.

It is generally agreed that chloroform has no injurious effect on the child while on the other hand I am firmly convinced that several cases of asphyxia of the new-born which I have seen, were due to the too free use of ether during labor.

In closing I can do no better than to quote a writer in the *Therapeutic Gazette,* whose name I have been unable to ascertain, who says, "Few women whose pangs have been assuaged and rendered bearable by the rational use of chloroform, would ever consent to face the ordeal without it. We should require very cogent and well supported reasons to induce us to deliberately withhold these advantages from suffering women, and so far it does not appear that valid arguments have been advanced against habitual resort thereto."

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THE ETIOLOGY AND DIAGNOSIS OF OZAENA AND ITS RELATION TO PULMONARY TUBERCULOSIS.

A PRELIMINARY REPORT.

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Although it would appear that the diagnosis of ozaena is almost always a comparatively simple matter on account of the characteristic odor usually present in ozaena cases, and the changes in the nose, as a matter of fact, it is quite the reverse. Anatomically, there is no absolute foundation for the recognition of this disease of the nasal mucous membrane, nor is there any specific organism (although different writers have claimed to have discovered one), which is characteristic of this condition alone, and which is present in no other nasal disease. The etiology and diagnosis depend largely upon what is really understood by the term ozaena. The old ideas, that ozaena was largely caused by syphilitic caries, a tuberculous or scrofulous diathesis, or some other dyscrasia, must be largely modified now, although many cases are undoubtedly due to syphilis. Nor is every case in which crusts are present in the nose, with an atrophy of the membrane, one of genuine ozaena. We must distinguish too, between cases of simple atrophic rhinitis with crust formation, and cases of true ozaena.

B. Fränkel has given us such a clear clinical picture of this condition, that, while his views have had to be changed somewhat, they still make up much of our knowledge on this subject. His old theories were briefly as follows:

(*a*) That form of ozaena which occurs with a chronic catarrhal process, without further complications, is the most common; the name ozaena simplex was suggested for this form. (*b*) The atrophic form of a chronic nasal catarrh is almost always the result of hypertrophic rhinitis. (*c*) A ferment sometimes develops in the crusts that are always present in the nose in this form of catarrh, and with other microorganisms, perhaps has a tendency to cause a decomposition of the crusts. As a result of this decomposition, a bad odor, which is most noticeable during expiration, develops. (*d*) It must not be considered, however, that this odor is pathognomonic of cases to which the name ozaena has been given; it occurs also in ulcerative conditions, foreign bodies, and caries. Zuckerkandl[1] states that decomposing secretions in the accessory cavities might cause the same odor. Some of the other theories as to the origin of ozaena are those of Michel[2], who held that ozaena depended mainly upon a purulent inflammation of the accessory cavities, particularly the ethmoid cells and sphenoidal sinuses, and of Grünwald[3], who states that a considerable percentage of ozaena cases are due to purulent processes in the accessory sinuses.

Other investigators, Abel[4], Löwenberg[5], and Perez, believed that certain bacteria, which they claimed to have discovered in ozaena cases, were responsible for the foetor. Abel called his bacillus the "bacillus mucosus," although both Löwenberg's and Paulsen's bacillus were practically identical. Abel claimed in fact, that his bacillus was not only responsible for the odor, but that he was actually able to produce in animals with cultures of his bacillus mucosus, the same atrophic nasal process that occurs in man. Perez gave to the organism he found in ozaena cases the name "bacillus fetidus ozaenae." Löhnberg[6] goes so far as to state that he found the accessory cavities diseased in every one of seventy-nine ozaena cases, *i. e.*, twenty-four times an empyema of the sphenoidal sinus, six times of the frontal sinus, ten times of the ethmoidal cells, and thirty-nine times of the maxillary antrum. Hajek[7] agrees with Grünwald that a certain percentage of cases are caused by accessory sinus disease, but this is not sufficient, he states, to explain the pathogenesis of the whole clinica picture of ozaena. Alexander[8] has recently published a most complete paper on the diagnosis of ozaena and its relation to pulmonary tuberculosis. His views are of such importance that the writer will quote at some length from his original paper.

A rèsumé of his views brings out the fact that the diagnosis of ozaena depends upon the presence of decomposing, foul smelling secretions, whatever the origin of the crusts may be. His investigations as to the connection between ozaena and pulmonary tuberculosis depend upon this view of the diagnosis. He also quotes the investigations of other authors, who reported twenty-two autopsies of ozaena cases. In fifteen, or sixty-eight per cent., pulmonary tuberculosis was present, and was the cause of death in all but one case. Affections of the accessory cavities were only present in eight of these twenty-two cases, a strong argument against Löhnberg's views. Alexander examined one hundred and eleven patients in a sanitarium, and eighty-nine polyclinic patients, two hundred in all. Very careful examinations of the nose, naso-pharynx, pharynx and larynx were made, as well as of the lungs in every case. The sputum was also examined in every case. Fifty of these cases, in which well marked evidence of atrophic rhinitis existed, were selected. The lungs in all these cases were carefully examined, irrespective of the fact whether there was any family history of tuberculosis or not, or whether any cough was present. The interesting point was elicited, that the majority of the patients in whom lung trouble was present, had no idea of its existence. They considered their cough to be due to the pharyngitis sicca, which was usually present. Twenty-two of these fifty cases of ozaena showed positive evidence of pulmonary tuberculosis, both on percussion and auscultation. In seven other cases the diagnosis of tuberculosis was probable.

While the views of Alexander and other authors who have been quoted, must in the main be accepted, it is nevertheless true, that an ozaena simplex, without odor, exists. It is this variety of ozaena perhaps which results from the hypertrophic form of nasal catarrh. The writer has seen cases in which both conditions, *i. e.*, localized hypertrophies of the membrane and atrophied areas, with crust formation, existed in the same nostril, *without* sinus disease. In some of these cases no odor could be detected, but they were nevertheless cases of ozaena. The theories in regard to ozaena depend largely upon our conception of the definition of the word. If we accept as cases of ozaena all cases in which there is atrophy of the membrane with crust formation, whether there is a tuberculous, scrofulous or syphilitic dyscrasia to account for the atrophic process or not, or whether caries exists, then we can *not* separate such ozaena cases from the atrophic processes following simple catarrhal conditions, such as hypertrophic rhinitis. It is of course true, that in the vast majority of the cases, the distinguishing odor is present and is diagnostic. In cases of simple ozaena without odor, there is as a rule no sinus disease. In the cases following a purulent sinusitis, in the writer's experience, a characteristic odor is always present. The thick, soft, foul smelling, decomposing crusts of an ozaena, secondary to a purulent sinusitis, are altogether different from the thinner and dry crusts of an ozaena simplex. The odor in such cases is directly due to the decomposing muco-purulent crusts and need not be explained by the presence of a bacillus. It would perhaps be more proper, instead of speaking of cases of ozaena as *secondary* to diseases of the accessory cavities, to speak of them as cases occurring *with* or as a *complication* of sinus disease, because in many cases it can not be positively determined whether the ozaena or the sinus empyema was the primary process. Then, too, a patient who has had an ozaena from childhood, may develop later in life an empyema of an accessory sinus, and the physician examining the case would be very apt to jump to the conclusion that the sinus empyema was the cause of the atrophic rhinitis. Cases that are still spoken of by some authors as cases of "purulent rhinitis of childhood" are very likely cases of sinusitis. It has been demonstrated by a number of writers, among others, Emil Mayer and Pearce[9], that sinus disease may occur very early in life. Pearce's investigations are of particular interest in considering a subject of this kind, because they show the frequency of accessory sinus disease complicating diphtheria and scarlet fever in children. Pearce examined the accessory sinuses, particularly the antra, of fifty patients who had died of diphtheria or scarlet fever, in the Boston City Hopsital. The heads were so sectioned that easy access to the accessory sinuses could be obtained. Thirty-nine cases of diphtheria were examined, and in twenty-five inflammatory changes in the accessory sinuses were found, *i. e.*, both antra in sixteen, both antra, sphenoidal and ethmoidal sinuses in two, one antrum only in five, and the sphenoidal sinus only in two. Of the eighteen double antrum cases, the exudate on both sides, in three, was a thick yellow pus, in three, a sero-purulent fluid, in three, a thin cloudy serous fluid, in one, a purulent fluid with membrane, and in one a cloudy serous fluid with membrane. Five cases of diphtheria with scarlet fever were examined, and in two changes in the antra were found. Of these two, one was unilateral and contained a thick yellow pus. Two cases of diphtheria with measles were examined, and both antra in each case contained a seropurulent fluid. Four cases of scarlet fever were examined; one antrum was normal, in one case there was a double empyema, and in another, both antra and the sphenoidal sinus contained greenish pus. The fact that cultures from the sinuses showed the presence of the diphtheria bacillus, which in some of the reported cases persisted for months, and even several years, is of great interest, because it is probable that sinuses so infected would *not* get well until their contents were thoroughly evacuated, and the bacilli finally removed by repeated and long continued douching with strong antiseptic solutions. So that if the condition is not recognized, the constant discharge from the sinuses during a long period might easily finally cause ozaena. Another interesting point in connection with our subject is this, that Pearce's investigations *prove* that very young children, in whom the sinuses are but slightly or not at all developed, as was the case in many of the cases reported by him, may have a sinus empyema following certain acute infectious diseases, and this, as has been shown, may persist for an indefinite period. This, then, also proves the *fallacy* of the theory advanced by some authors, that cases of ozaena reported in young children, could *not* be secondary to sinus empyema because the accessory sinuses did not exist in very young children, and the probable *truth* of Grünwald's theory, that a large percentage of ozaena cases are secondary to accessory sinus disease. The cases of so called purulent rhinitis of children are, in the writer's opinion, probably cases of sinus disease following some acute infectious disease, such as diphtheria, scarlet fever or measles, and it is just this class of cases which later in life may be the cause of genuine ozaena. It is probable, in view of the positive results of Pearce's investigations, that a very large percentage of children, who have had the above mentioned infectious diseases, have as a result sinus disease, which may not be recognized for many years, and may finally produce the characteristic atrophic changes in the membrane. To conclude the consideration of the etiology and diagnosis of ozaena then, we must recognize several distinct types: a genuine ozaena, in which some positive cause like sinus disease in childhood can be determined; an ozaena simplex, which may result from any chronic catarrhal process, but particularly the hypertrophic form of nasal catarrh, and an ozaena in which the etiology cannot be traced. There is, of course, no doubt that it would not be correct to state that an ozaena was secondary to sinus disease, except in cases of which the physician has a positive record for years and can be practically certain that the nose was not diseased until *after* the patient had suffered from an inflammatory process in one or more of the accessory cavities.

In conclusion the writer would like briefly to give the results of some preliminary investigations of his own, along this same line. So far twenty cases of genuine ozaena have been studied, with particular reference to their etiology and their relation to pulmonary tuberculosis. In eight of the twenty cases positive evidences of sinus disease existed; in four antral empyema, extending over a long period; in two, antral empyema and ethmoiditis, and in two chronic frontal sinusitis and ethmoiditis. The writer, in this paper, will not describe at length the methods used in arriving at these results. Transillumination of the sinuses with a powerful lamp (that of Chevalier Jackson) was employed, and trial punctures of the antrum, through the nose, were made. In several cases the diagnosis could be positively made without such aids. In one a radical operation for the cure of a chronic frontal sinusitis had been performed by Dr. A. W. Elting of Albany, and subsequently the patient was referred to the writer, and the sinus washed out through the nose. In this case a genuine unilateral ozaena, without much odor, however, existed, but whether secondary to the frontal sinus empyema or not could not be determined. In another case, that of Miss S., aged thirty years, whom the writer has had under observation for the past nine years, a genine ozaena existed in both nostrils. Several operations for the cure of a chronic ethmoiditis have been performed in this case, with some improvement of the ozaena. In two cases the nasal condition dated back to childhood, and was said to follow scarlet fever and measles. In these cases, sinus disease had probably existed from that time. In one of these cases, that of a young lady aged twenty years, several operations for an existing suppurative condition in the ethmoid cells were performed, with marked improvement of the ozaena. The odor was very decided in this case and the ozaena was probably secondary to the ethmoiditis. One of these eight cases was so unusual that a more detailed description might be of interest.

G. H., a boy, aged ten years, suffered from an attack of nasal diphtheria four years ago. His mother who contracted diphtheria from him, and had a severe attack, stated that from that time he had suffered from occlusion of the nostrils, and an offensive discharge. Every day he blew large crusts from the nose. At the time he came under the author's observation he was suffering from a typical atrophic rhinitis, more marked on the left side, with an offensive odor. There is always pus to be seen in the middle meatus, which probably comes from the antrum, but that point has not been definitely settled as yet. The crusts in this case were not like those of a typical ozaena, but more like an organized membrane. When they were blown out, however, the characteristic atrophy of the membrane could be seen. Cultures were taken from both nostrils, sent to the Bender Laboratory, and examined by Drs. Pearce and Winne, who reported that they showed the presence of typical diphtheria bacilli, in conjunction with an organism that was probably Friedländer's bacillus mucosus capsulatus.

The interesting point in this case is the presence of diphtheria bacilli in the nose *four* years after the attack of nasal diphtheria, and the typical atrophic and membranous rhinitis resulting. The boy is still under observation. It may be of interest to add that the membranous rhinitis, the presence of which is an argument for the fact that he really *had* nasal diphtheria, is clearing up under antitoxine injections. With the exception of the membranous rhinitis, the boy is perfectly well with perfectly normal temperature. The pharynx has been perfectly normal right along. In the twelve remaining cases the cause of the ozaena could not be positively determined. There was no history of syphilis in any case, nor was there caries present. In some of the cases the nasal trouble was dated back to infectious diseases, *i. e.*, measles, scarlet fever and diphtheria in childhood. In seven of the cases the ozaena was unilateral, which speaks perhaps for an old healed sinusitis (which is usually unilateral), and in five both nostrils were involved.

The results of the study of these twenty ozaena cases with reference to pulmonary tuberculosis were rather startling. In seven well marked evidences of pulmonary tuberculosis were found. In five, the physical signs on auscultation and percussion, were so positive that sputum examinations were unnecessary. In two the physical signs were slight, but tubercle bacilli were found in the sputum, and later the disease in the lungs could be readily determined. Three of the seven cases have since died as a result of the pulmonary tuberculosis. In one of the seven cases, that of a young girl aged twenty-four years, a suppurative otitis media complicated the pulmonary tuberculosis, which later developed into a mastoiditis requiring operative interference. Tubercle bacilli were found in the pus from the middle ear. Following the mastoiditis, this patient has developed laryngeal tuberculosis and will not of course live long. She was seen by the writer about six weeks ago and the laryngeal and pulmonary tuberculosis had become quite extensive. It is certainly more than a coincidence that seven out of twenty ozaena cases should be complicated by pulmonary tuberculosis and would point to an etiological relationship. When we consider that in ozaena the normal functions of the nose, to warm and moisten the inspired air and to free it from dust and other substances, is absolutely interfered with, we can readily understand how a tendency to tuberculosis may be established. The thin, watery mucous in a normal nose washes out the dust and bacteria, and the investigations of Hewlitt and St. Clair Thompson have also shown that the normal nasal mucus has bactericidal properties. In eighty per cent. of the cases examined by them the normal mucus was found absolutely sterile, micro-organisms being only found in the nasal vestibule. In ozaena, with a nose full of thick, foul smelling crusts, the nasal passages certainly cannot be washed out. All inspired substances, which may be filled with bacteria of all kinds, cling to these thick, tenacious crusts, which in many cases are nothing more than dried pus from the accessory sinuses; the bacilli find a perfect culture medium, and may later be carried to the throat and lungs. In the words of Alexander, "the nose, or the filter, which should *protect* the body from the bad results of the invasion of micro-organisms, *itself* becomes a culture medium for these organisms and becomes a permanent source of infection."

Another case of ozaena with laryngeal and pulmonary tuberculosis has just come under the writer's observation. Miss W., aged twenty-eight years, has a unilateral ozaena with advanced laryngeal and pulmonary tuberculosis. This makes eight cases of pulmonary tuberculosis out of twenty-one ozaena cases, two being also complicated by laryngeal tuberculosis, certainly a high percentage.

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STARCH DIGESTION IN INFANCY.

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The fact that saliva had the power of converting starch into sugar was discovered in 1831, but the active principle was not extracted until fifteen years later and to it the term ptyalin was applied. The existence of this enzyme was detected in the pancreas in 1854, and a little later it was shown to exist in the succus entericus. Bial, in 1893, found a diastatic enzyme in the blood and lymph and Luzzatti has recently shown that it exists in human milk but is absent in cow's milk.

Saliva is formed in three sets of salivary glands. The act of secretion is carried on in the alveoli of the gland. These alveoli are bathed by lymph which exudes from a plexus of capillaries. The secreted saliva is poured in a delicate canal in the center of the alveolus and this canal opens into a duct which flows into the single large duct through which the whole secretion of the gland passes. Each gland is supplied with fibers from the cerebro-spinal and sympathetic systems. The process of secretion appears to consist of three stages, absorption of nutritive matter from the lymph by the cell, the manufacture and deposition of the granules in its interior and the subsequent solution of these and their extrusion from the cell into the duct. These granules are supposed to be zymogens, antecedents of the enzymes themselves.

The saliva as it exists in the mouth is a mixture of the secretion of these glands. Ptyalin is present in the secretion from all three sets of glands, but it is most abundant in the parotid glands.

The process by which ptyalin converts starch into sugar consists of several stages. The starch is first rendered soluble and then converted into erythrodextrin. Erythrodextrin in turn splits into several varieties of achroodextrins and the final stage is maltose.

The reaction of the salivary glands is alkaline and ptyalin works best in an alkaline medium. For this reason it was formerly thought that the characteristic action of the saliva would be checked on reaching the stomach. The researches of Chittenden have shown this not to be the case but that, on the contrary, ptyalin acts better when there is a faint trace of free hydrochloric acid present. Its action is destroyed when the amount of free hydrochloric acid reaches one tenth of one per cent. (The normal amount at the height of digestion is from fifteen to twenty-five hundredths of one per cent.) It will be seen, then, that the conversion of starch into sugar can take place in the stomach. Robertson has shown that the average duration of ptyalin action in the stomach is three quarters of an hour. (Hydrochloric acid does not appear free in the stomach contents until about half an hour after the digestion of food.)

The chemical tests for detecting the presence of starch and the intermediate stages to maltose are very simple. A weak Lugol's solution (iodin, potassium iodid and water) when added to starch, will turn it a deep indigo blue which is unmistakable. The same reagent when added to erythrodextrin produces a purplish-red color. To detect maltose or dextrose the ordinary clinical tests for sugar, such as Fehling's, can be employed.

The earlier workers were unable to detect any ferment in the saliva of young infants. Ritter v. Rittershain was only able to find a sugar-reducing saliva after the forty-first day of life. Schiffer, in 1872, was the first to detect ptyalin in the saliva of new born children. Korowin, in 1873, was also able to demonstrate the presence of ptyalin in the saliva of new born infants. He found that the diastatic power increased as the infant developed and he was unable to find any difference in the power of the diastatic action of the saliva from a healthy adult and an eleven month old baby. Zweifel made an exhaustive study on this subject a little later and his results are still quoted as authoritative. He worked with extracts of the salivary glands of deceased infants. He found that ptyalin existed in the parotid gland at birth, but he was unable to detect it in the submaxillary gland until after the second month. Ballantyne states that the saliva has amylolytic power at the end of foetal life and Kruger found the ferment present in the salivary glands of a seven month foetus. Keating made a number of experiments in 1883 and found that starch conversion in young infants occurred only irregularly and was absent in a seventeenth month old baby.

The latest work on the subject was done by Schilling in 1903. His special object was to test the accuracy of Zweifel's statement that no diastatic ferment existed in the submaxillary glands until after the second month. He made glycerine extracts from the submaxillary glands of calves from two to three weeks old. In every instance he was able to demonstrate a sugar-converting property. He then obtained submaxillary saliva in young infants from nine days to six weeks of age and found it contained a diastatic enzyme in every case.

The presence of a starch-converting ferment in the pancreas of young babies has an important bearing on starch digestion in infancy. Amylopsin or pancreatic diastase is perhaps identical with ptyalin. Korowin claimed it was absent before the fourth month, while Zweifel was able to detect it by the eighteenth day. The more recent researches of Moro, however, have established the fact that it is present in the newly born.

Cereal decoctions have been used in infant feeding for centuries. In olden times, bread or flour soaked in water were sometimes used in place of milk. The earliest reference Hamill was able to find to the use of diluted cow's milk was by Rosen von Rosenstein in 1776. He used barley water as a diluent but, where constipation existed, he added a little thin filtered oatmeal gruel in which a little clarified honey had been dissolved.

During the present time we find a wide divergence of opinion concerning the use of cereals. In Germany, Henoch, Baginsky and others postpone the use of starches until after dentition, while Heubner and his followers employ them from earliest infancy. The best known advocate of cereal diluents in our country is Jacobi. Rotch is opposed to their use and believes that they are used mainly by physicians who have not made "an extended study of the finer possibilities comprehended in laboratory modification." He claims that as starch is not present in mother's milk, it is a foreign element and that the feeble amylolytic power of infants should not be taxed. Holt does not regard the question of adding cereal decoctions to the milk as settled. He admits that it is a desirable measure for some infants but he limits the use of cereals to cases where there is more than usual difficulty in digesting the milk proteids.

A fundamental principle in adapting cow's milk to the digestive capabilities of the infant lies in reducing the amount of caseinogen. When cow's milk is diluted, other ingredients than caseinogen are reduced. For the purpose of replacing the fat, carbohydrates were employed and this was the first reason for the use of farinaceous decoctions in infant feeding. Clinical evidence showed that babies fed on milk thus diluted often did better than on milk diluted with plain water. Later researches have shown that starch cells not only are converted into maltose, thereby increasing the assimilable carbohydrates, but they also are distributed throughout the coagulum and break it up into finer curds. This is the principal function of cereals as an attenuant in modifying cow's milk.

Opponents to the employment of starch are numerous and many occupy high scientific positions. Czerny, Baginsky and others assert that in young infants the starch is acted upon not by the saliva or pancreatic secretions but by intestinal bacteria which break it up not into sugar but into lactic, butyric, succinic, and propionic acids. They claim that this gives the stools a strongly acid reaction and produces great abdominal distention.

In order to convince himself as to the ability of young infants to digest starch, the writer made a series of tests on the babies at St. Margaret's House.

Thirty-five infants were given barley water on various occasions instead of their regular feeding. One hundred of such barley meals were removed from fifteen minutes to two hours after the feeding. The stomach was washed out one half hour before the feeding in about one-third of the tests. About two cubic centimeters of the stomach contents were poured in a test tube and a few drops of a weak Lugol's solution added. The results were as follows: Free starch was present in two per cent., erythrodextrin in forty-one per cent. and achroodextrin or maltose in fifty-seven per cent. of the tests. In the two instances where free starch was detected, the babies were sick and the barley water was removed less than twenty minutes after first taking the bottle. In the same infants starch conversion was found at other times.

Tests were then made to determine if the stomach contents contained any diastatic ferment. For these tests eight infants under two months were utilized. The stomach contents were removed from one-half to two hours after a regular or a barley water feeding. A one-half per cent. starch solution was prepared from ordinary laundry starch and added to various amounts of the stomach contents. Three parts of stomach contents and one part of the starch solution were mixed and placed in a thermostat for an hour. On addition of Lugol's solution, the indigo-blue of starch did not appear in a single instance. The youngest infant was six days old and a breast milk feeding was removed one-half hour after nursing.

The stomach contents removed two hours after feeding showed diastatic power. No free hydrochloric acid was present in these cases and twenty-eight (28) was the highest total acidity.

The next step was to determine the diastatic action of the saliva. Several attempts were made to obtain the saliva of very young infants but without success. Finally, the following plan was adopted: Small "comforts" were made of absorbent cotton covered with ordinary hospital gauze. A little salt was placed on the tongue in order to stimulate the flow of saliva. The babies would suck vigorously on these "comforts" which were removed after two or three minutes. They were then placed in test tubes and a small amount of water added. After a thorough shaking, a small amount of the starch solution was added and, after a couple of minutes, some Fehling's solution. After boiling there was a distinct sugar reaction in each test. In some instances a few drops of Lugol's solution would be added and three times the presence of free starch was indicated, but after adding the Fehling's solution and boiling, the reduction of the copper resulted. This would show that a partial conversion had taken place and that both free starch and converted starch were present in the same test tube. These experiments were made on seven babies ranging in age from sixteen days to two months.

Control tests were always made. These revealed rather an interesting condition. It was found that after the starch solution was a few days old, it would be turned purple instead of blue by Lugol's solution. If, however, the solution was boiled when freshly prepared and kept in a sterile tube, it would show free starch for a long time. This proves that partial starch conversion can be accomplished by bacteria and that it is not necessarily broken up into inorganic acids, as the reaction remained alkaline to litmus paper even after several weeks.

From the above experiments it would seem that the following conclusions were justified:

That the saliva of very young infants contains a diastatic enzyme capable of converting small amounts of starch into maltose;

That the diastatic action of the saliva may continue in the stomach as long as two hours after feeding;

That, on physiological grounds, there is no reason why young infants cannot digest small amounts of starch.

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THE ETIOLOGY OF THE SUMMER DIARRHEAS OF CHILDREN AND OF DYSENTERY OF BACTERIAL ORIGIN.

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So much has been written within a period of a few years concerning the etiology of dysentery, and particularly of late concerning the relation of the dysentery of adults to the summer diarrheas of infants, that it will not be necessary to treat the subject exhaustively. We will endeavor, however, to give some idea of the status of this work, both from the laboratory and the clinical standpoints, and report the results obtained during the past summer, from the study of a few cases of dysentery and summer diarrhea located in Albany and vicinity.*

Park and Dunham,[3] have recently reviewed our knowledge concerning the occurrence of dysentery in ancient times. This disease seems to have been well known to Hippocrates, Celsus, and later by Galen and others, down to our own times. Amœbæ were found associated with the disease by Lösch in 1875, Koch in 1883, Osler in 1890. Later Councilman and Lafleur, and others, studied the relation of the amœbæ to the pathological conditions of the intestines and liver. Amœbæ, however, have been found chiefly in those cases of dysentery originating in tropical countries.

Chantemesse and Widal[4] have recently claimed that in 1888 they discovered the dysentery bacillus in the fæces of five cases of the disease, and in the mucous membrane of the large intestine and mesenteric glands of one case at autopsy. Their description of the bacillus was not complete nor their evidence altogether satisfactory.

In 1898 Lartigau[5] gave the history of an epidemic of dysentery in Hartwick, N. Y., which was undoubtedly due to the Bac. Pyocyaneus. He quotes Calmette as having found the same organism in epidemic dysentery in Cochin, China and Maggiora in this disease in the north of Italy.

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* In Albany during previous summers there have been the number of cases of summer diarrhea usually encountered in a city of its size, and the same might be said of the surrounding cities and villages. This past summer, however, the number of cases was most unusually small and this accounts for the report of such a small number of cases. Not only was the freedom from this class of diseases noted in this portion of New York State, but attempts to study series of cases in other parts of the State failed through lack of material.

Shiga[6] in 1897 and 1898 in Japan, where acute dysentery was very prevalent, not only isolated a bacillus from the fæces of all of the cases of the disease studied, but discovered that the blood serum of the persons afflicted caused the clumping of the bacillus isolated when mixed with cultures of the latter in proper dilutions. Amœbæ were not found in these thirty-four cases and two autopsies. The characteristics of the bacillus isolated from these cases closely resembled those of Bac. Typhosus, except that it was non-motile and did not agglutinate with the blood serum from cases of typhoid fever. The growth of the dysentery bacillus on potato was also unlike that of the typhoid bacillus.

Flexner[7] in 1900, followed up the work of Shiga and investigated the dysenteries of the Philippines. He isolated and brought back to this country an organism which showed markedly similar characteristics to those of the Shiga bacillus.

Strong and Musgrave[8] continued the work begun by Flexner in Manila, and of one hundred and eleven cases of the disease investigated, thirty-two showed the presence of a bacillus which they considered identical with the Bac. Dysenteriæ of Shiga, and also with the organism isolated and studied by Flexner. In the discharges of the other seventy-nine amœbæ were demonstrated. They claimed that clinically the two classes of the disease could be readily distinguished, and that the classes were further distinguished by the serum from cases of the bacillary dysentery, agglutinating the organism isolated from the discharges of such cases.

Kruse[9] in 1899 isolated a bacillus identical with the Shiga bacillus from cases of epidemic dysentery in Germany, and later[10] he isolated a bacillus from cases of dysentery occurring in an insane asylum. This latter organism was very similar to the Shiga bacillus, but while it gave positive agglutination reactions in high dilutions with the blood serum of the cases from which it was isolated, the serum of these cases did not agglutinate the Shiga bacillus, nor did the serum of animals inoculated with the Shiga bacillus agglutinate this organism. On this account he concluded that the diseases were not identical.

Vedder and Duval[11] during 1901 studied cases of acute dysentery in Philadelphia, in an insane asylum in Lancaster, Pa., and in an institution in New Haven, Conn. The last two series were from epidemics. Where they were able to investigate the fæces without delay or the intestinal mucous membrane of acute cases they obtained almost pure cultures of bacilli which they considered identical with the Shiga bacillus as isolated and described by Shiga, Flexner and Strong. While they did not find motility in their cultures, they demonstrated the presence of flagella on the organisms. Agglutination reactions due to the action of the sera of the patients upon the bacilli isolated, and upon other cultures of dysentery bacilli were found to be positive, although variable. The blood sera from the severe New Haven cases were especially active in their agglutinative properties.

Martini and Lentz[12] found that the whole group of bacilli isolated from cases in various parts of the world could be divided into two classes by means of their agglutination reactions with various normal and immune sera.

Lentz[13] followed up this work by showing that a very similar division of the group could be made upon the differences observed in growth of the different bacilli upon mannit litmus agar. In these divisions the bacilli designated as Shiga, Kruse, Flexner (New Haven), and several others, form one class which do not produce acid in the mannit medium, and Flexner (Manila), Strong and others, which do produce acid in this medium, form the other class.

Shiga[14] claims that the growth of the Kruse strain through several generations in milk so altered its affinities that in subsequent agglutination experiments it comported itself like Flexner (Manila) strain in similar experiments.

Lentz[15] cultivated both Kruse and Flexner strains alone and together in milk, and concludes from both cultural experiments and agglutination reactions that both organisms retain their special characteristics.

Recently Hetsch[16] has repeated the original work of Lentz on the relation of the different bacilli to the fermentation of sugars. He used a mannit-litmus-nutrose medium, and also a maltose-litmus-nutrose medium and obtained results very similar to those obtained by Lentz, which indicate a definite division of the whole group of dysentery bacilli into two sub-groups.

Hiss and Russell[17] having isolated a bacillus closely resembling the typhoid bacillus from the intestinal mucous membrane of a case of fatal diarrhea in a child made an elaborate comparative study of its cultural and agglutination characteristics with dysentery bacilli and allied bacteria. Working with more accurately prepared culture media, using only broth free from "muscle sugar" when another sugar was to be subsequently added, and with more accurate determinations of the reaction of their media than Lentz had used according to his published methods, they cast considerable doubt upon some of the distinguishing characters which mark the division classes of the group of dysentery bacilli as made out by Lentz. These authors were unable to observe acid production by either Kruse, New Haven or Flexner in mannit litmus media which had been prepared from so-called sugar free broth, or from serum water. However they note that other cultures of Flexner (Manila and Baltimore), and of Strong, not only produce acid in mannit-litmus media, but also ferment with acid production other sugars as maltose, dextrin and saccharose, even when such media are prepared from sugar free broth or serum water. The bacillus isolated by them more closely approximated the Flexner and Strong, Manila, cultures than the Kruse and New Haven organisms, but did not ferment maltose. In general the results of the agglutination experiments of these authors were very irregular and confusing, and indicated that dependence upon agglutination reactions for the determination of the character or race of the infecting organism in a given case, or series of cases, would in many instances lead to erroneous conclusions.

Gay and Duval[18] having isolated several cultures of both types, or subgroups, of dysentery bacilli, as laid down by Martini and Lentz, from each of three cases of dysentery occurring endemically, studied cultures of these two types of bacilli in their agglutination reactions with the sera of two horses each immunized with a corresponding type of the bacillus. The results of these studies, according to the authors, indicate that the results of the agglutinative studies of Martini and Lentz are correct in the main. Gay, in a separate paper published at the same time, elaborated this work by including not only the cultures of the two types of bacilli isolated from the same case but also others of the true Shiga type, and of the Flexner (Manila) type. His results agree in general with those of Martini and Lentz. He, however, demonstrated according to the method of Neisser and Wechsberg, that bacteriolysis takes place in vitro when correspondence exists between the type of bacilli and the immune serum, but not when the bacilli are one type and the immune serum of the other.

Park and Dunham, and Park and Carey[19] have reported the results of the investigation of three epidemics of dysentery in different sections of the country and of individual cases in New York City. The bacilli from these cases were mostly allied in their cultural and agglutination characteristics to the Flexner and Strong group of organisms which develop acid in mannit media and produce indol. One culture (Tuckahoe) produces indol but does not develop acid from mannit. Its agglutinating properties are similar to the Shiga, Kruse and New Haven type of dysentery bacilli.

Park calls especial attention to the fact that normal horse serum will frequently agglutinate any of the cultures of dysentery bacilli in dilutions up to 1-250, and that the use of the serum of horses immunized with any of these cultures for the purpose of differentiating the latter would probably lead to false conclusions. This he has more definitely shown in a later article[20] in which he extends the limits of the action of normal horse serum to dilutions of 1-1000 for certain types of the organism. The limits for the action of normal adult goat serum are somewhat less.

Pilsbury[21] has very recently shown that the serum of normal human being over one year of age will frequently agglutinate both types of dysentery bacilli in dilutions of 1-20, and occasionally up to 1-50.

Bergey[22] studied the agglutination reactions of a series of fifty cultures of bacilli isolated from water. Of these, thirteen gave agglutination reactions with dysentery immune sera. These organisms could be definitely differentiated from either type of the dysentery bacillus by their morphological and biological characteristics. He concludes that the use of dysentery immune sera for differentiating bacilli closely related to the dysentery group from the latter by testing their agglutinating characters, is likely to lead to error unless the limits of the agglutinating power of the sera used are definitely known. The author found that the normal sera of horses, dogs, rabbits would frequently agglutinate a number of the various dysentery bacilli and closely related organisms thus confirming the work of Park on this point.

Duval and Bassett[23] investigated fifty-three cases of summer diarrhea of the dysenteric type, and obtained cultures of dysentery bacilli in forty-two. They later investigated twenty-five consecutive cases of summer diarrhea of all types and obtained from the fæces of nineteen similar organisms. In these latter cases the bacilli were generally much less numerous and more difficult to obtain than in the former series. They were unable to obtain the dysentery bacillus from the stools of twenty-five healthy children. The serum of the patients generally gave positive agglutination reactions with the cultures of bacilli isolated from those cases and with other cultures of the dysentery bacillus. The dilutions in these reactions varied. A detailed study of the work of these authors has not appeared and whether their investigation extended to the determination of the presence of other bacteria, such as the bacillus pyocyaneus or proteus vulgaris or streptococci in large numbers, in any of the cases examined, and of the relative number of such to the number of dysentery bacilli when the latter was also present, and the period during the disease in which such other bacteria appeared, if at all, is not known.

Booker[24] in his extensive bacteriological investigations of all forms of summer diarrhea of children has in the past called attention to the presence in the discharges and pathological conditions of many such cases of streptococci and proteus vulgaris, as well as a large number of species or races of bacteria closely allied to the colon bacillus. Although he frequently observed the presence of these various organisms in such large numbers as to be at times the predominating forms in the fæces, yet he never definitely committed himself to an opinion as to whether they were the strict etiological agents or the causes of secondary pathological conditions.

Martha Wollstein[25] studied one hundred and fourteen cases of infantile diarrhea. From the discharges of thirty-nine of these she isolated dysentery bacilli of the Flexner Manila type in all but one, which contained a Shiga type bacillus. From all the cases showing both blood and mucus in the stools, and from many of these showing much mucus but no blood, the dysentery bacillus was obtained. It was not found in all cases showing considerable mucus in the stools. Dysentery bacilli were not found in the stools of ten healthy and ten new born infants. The agglutination reactions of the two types of dysentery bacilli isolated with corresponding and opposite types of immune sera, show the specific distinctions between the two groups noted by others. The agglutinating properties of the sera from the cases were more or less uncertain in their appearance. When present the sera agglutinated only the Flexner Manila type of bacilli. The presence of dysentery bacilli in the fæces of some of the cases up to two months from the time of onset was conclusively demonstraated. as was also the transference of the causative agent from patient to patient within the hospital. The bacilli were not found in the heart's blood or organs in five autopsies. Outside of the mesenteric glands dysentery bacilli have been found in other tissues but rarely by any other workers in this field.

Hastings[26] gives a summary of the work of Kendall during the past summer in the Boston Floating Hospital. Thirty-five cases, almost exclusively those showing both blood and mucus in the stools, were studied. From twenty-eight the dysentery bacillus was isolated. He speaks of the difficulty of obtaining the dysentery bacillus from cases of diarrhea other than those showing symptoms indicative of dysentery, and explains, what has also been personally stated to us by other workers on the subject during the past summer, that frequently from one hundred to nine hundred apparently favorable colonies taken from plates made from the fæces need to be tested before one colony of the dysentery bacillus is obtained. What significance will be attributed to the finding of such a small number of dysentery bacilli as compared with the number of other bacteria present, will probably depend on the number of such cases observed, the results of agglutination tests of their serum with the same or other strains and types of dysentery bacilli, and the determination of the association of these cases with other cases in which the symptoms were those of true dysentery.

We think it can be fairly concluded from this resumé of the work of others that there exists a group of bacilli having in general similar characteristics which differentiate them from the typhoid bacillus on the one hand and the colon bacillus group on the other, which can be said to have an etiological relation to most cases of endemic and epidemic dysentery whether the same occur in adults or children. That there probably are rare epidemics of this disease in which the clinical course may not conform exactly to the usual type, in which bacteria other than the group of dysentery bacilli are the etiological factors. An example of this kind is the epidemic of dysentery due to Bac. Pyocyaneus infection reported by Lartigau.

From the evidence brought forth it can be tentatively held that this group of dysentery bacilli can be divided into two types, the distinguishing features being, first, the difference of action in their growth in media containing mannit, the one, of which the original Shiga and Kruse cultures are examples, not fermenting this sugar with the production of acid, and the other, of which the Flexner and Strong Manila cultures, and the various cultures isolated from the summer diarrheas of children are the best examples, fermenting mannit with the production of acid, and secondly by the failure to obtain equal quantitative results from the agglutination tests of the bacilli of one type with the immune serum prepared from the other, with those obtained where the types used are the same. Also by negative results from the use of either type of organism with serum of the opposite type in bacteriolytic experiments.

It is likewise probable that further work will have to be done before the actual value for diagnostic purposes, of agglutination tests with the blood serum of dysenteric patients upon the different types of the organism, can be determined. In the meantime great caution should be used in interpreting the results of such tests.

Whether the cases of summer diarrhea in children not showing symptoms of true dysentery, and not having been more or less closely associated with true cases of the disease, can be considered as uniformly caused by either of these two types of dysentery bacilli is still open to question.

In considering this phase of the question it should be remembered that with virtually every disease caused by a pathogenic bacterium all possible degrees of severity of symptoms may exist, and it must not be forgotten that the mild cases of different diseases, as far as their etiology is concerned, often have remarkably similar clinical characteristics.

Towards the production of an efficient antidysenteric serum considerable effort has been expended. Shiga[27] in his early work on the bacillus isolated by him noted the toxic action which the cultures had upon their injection into animals. Killed cultures injected in small amount subcutaneously in a man caused a marked general reaction, such as is observed in mild dysentery. Intraperitoneal injections of living cultures in guinea-pigs were followed by a hemorrhagic inflammatory condition of the intestinal mucous membrane. Dogs and cats fed with living cultures had after one or two days a thin, watery, slimy diarrhea. Other workers have obtained similar results at times, but instances of the production of characteristic clinical picture of dysentery in human beings by any inoculation or feeding experiments in animals, are of the utmost rarity. On the other hand the production of all grades of atypical infection in animals can be most readily brought about by a variety of methods.

Powerful poisons, or toxins, have been prepared from the bodies of dysentery bacilli by several workers, the principle of autolysis being utilized to bring about the abstraction of these intracellular toxins from the cell bodies, a principle demonstrated by Levy and Pfersdorff.[28] Couradi[29] claims that such autolysis of the bacteria in water, or salt solution, is due to a cell ferment which operates best in the absence of antiseptics, and at the body temperature. By a method based on these principles he prepared a toxin free from bacterial bodies which would, when injected intravenously, kill rabbits in two days, and also guinea-pigs in as short a period when injected intraperitoneally.

Neisser and Shiga[30] claim a better and simpler method and the production of a more powerful poison free from bacterial cells. The twenty-four hour growths of dysentery bacilli on agar are washed off with a small amount of salt solution. The suspension is then submitted to a temperature of sixty degrees centigrade for one hour, after which it is placed in the incubator for two days during which time autolysis takes place. The bacterial bodies are then removed by filtration through unglazed porcelain filters, and the filtrate preserved aseptically without the use of antiseptics.

Rosenthal[31] claims the production of strong toxin in three or four weeks cultures in Martin's bouillon. Couradi states that the intraperitoneal injection of his toxin into guinea-pigs causes violent peristaltic action followed by collapse and death. At autopsy the intestinal mucous membrane shows hemorrhagic spots. Ulcerations are, however, a chronic development.

Shiga[32] was probably the first to immunize horses by the subcutaneous injection of the dead bodies of dysentery bacilli grown upon agar suspended in salt solution. He was followed by similar work under the direction of Kruse in Germany and Flexner in this country. The antidysenteric serum of Shiga was used in 250 cases of the disease in Japan with a reported lowering of the death rate in the years it was used in two hospitals, to at least one-third of the rate for previous years. Those recovering did so in about half the time and those dying had lived five days longer on the average than the cases not receiving the serum.

Kruse[33] reports 100 cases treated with a net mortality of five per cent., which was about one-half the usual death rate. In nineteen cases under ten years of age but one died.

In this country under the direction of Flexner, Gay[34] has made some very interesting studies upon the problems of vaccination and serum therapy. In his first paper he describes the preparation of the vaccines used for the inoculation of the horses. Several strains of both types of dysentery bacilli were used one for each horse, and he describes the methods pursued in their inoculation. He demonstrates the protective power of their serum upon guinea-pigs inoculated with vaccines and living cultures of the same strain of type as was used for producing the immune serum selected, and also shows that for the opposite type the protective power is much less. The latter important point led him to amplify his work, which he reports in his second paper. Aside from agglutination and bacteriolytic experiments with the two types of bacilli and their immune sera, to which we have already referred, stating the failure of these reactions between the immune serum produced with one type and the bacilli of the other, he shows that in estimating by guinea-pig inoculation the protective power of each type of sera on bacilli of the opposite type, the results are more favorable. About twice the quantity of a serum is needed to protect the animal when the serum and bacillus used are not in conformity as to type as when they both correspond.

Shiga[35] has demonstrated the very important fact that human blood serum is capable of reactivating inactive antidysenteric horse serum as shown by tests on guinea-pigs, and he is led to hope therefrom that the antidysenteric serum will find the proper complement when injected into the human body.

Hastings[36] reports the use of antidysenteric serum in his thirty-five cases, and states that it was not very efficient. The general feeling as expressed in discussions participated in by Booker, Holt, Freeman and others, is that the serum must be used early, or as a preventive agent, and that results from its therapeutic use have not as yet been decidedly hopeful.

INVESTIGATIONS MADE IN ALBANY.

In the summer of 1901 an epidemic of ileo-colitis occurred among the infants at St. Margaret's House, in which there were twenty-six cases with thirteen deaths. Blood was observed in the stools of but very few of these cases, but mucus was commonly present often in considerable amounts. The Bac. Pyocyaneus was found to be present in considerable numbers in the intestinal mucous membrane or fæces of at least four cases.* One of these four cases recovered, the organism having been found in the stools during life. Of the three fatal cases all showed the presence of Bac. Pyocyaneus in the stools during life, and one early in the disease. They were found in the mucous membrane of the colon at the autopsy of one case. Whether the Bac. Pyocyaneus had any etiological relation to this epidemic we are not prepared to say. The results are included in this study as illustrating the at least occasional presence of well known and frequently pathogenic bacteria in the stools of cases of summer diarrhea under circumstances, and in such numbers, as to lead to a suspicion as to their relation to the causation of the disease in such cases.

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* Owing to the absence of laboratory facilities in the institution at that time a systematic bacteriological examination of the faeces of all the cases was impossible, and exact records of other cases were not made, and such cases are not included, although it is certain that the bacillus pyocyaneus was found in the stools of other cases. The bacteriological work performed was done at the Bender Laboratory by Dr. H. W. Carey.

With the expectation that the usual number of cases of summer diarrhea would occur this year among the infants at St. Margaret's House, and in Albany, and having in mind the possibility of the advent of another epidemic of dysentery, preparations were made for inaugurating a systematic bacteriological study of the stools from such cases in the institution. Through the kindness of Dr. L. Emmett Holt of New York, and of Dr. Simon Flexner of Philadelphia, we enjoyed the advantage of having the co-operation of the Rockefeller Institute in prosecuting this study.*

As has been explained, so few cases of either dysentery or severe diarrhea developed that the opportunities for work hardly warranted the preparations made. The cause for this dearth of material is not definitely explainable. It is also highly interesting to note that the same condition of affairs prevailed in the larger part of the State of New York. To our knowledge dysentery occurred in but two places in the State. In and within the vicinity of the city of Mount Vernon, the seat of an extensive epidemic a year ago, another outbreak occurred. No attempt was made to study these cases, as it was understood that the laboratory of the New York City Department of Health intended, and did continue their studies of last year at this place. The other location of the disease was at Rensselaerville, Albany county, a place located so far from railway communication that it was thought inadvisable to undertake any investigation of these cases. An epidemic of true dysentery did occur in the city of Pittsfield, Massachusetts. We are unable to give any definite information as to the number of cases in this latter epidemic, but one of us (Shaw) had the opportunity of seeing one of these cases, the clinical history of which is as follows:

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* The Rockefeller Institute furnished a generous supply of antidysenteric serum for use in our cases, and admitted to the class organized to receive special instruction in bacteriology of dysentery our assistant, Dr. Willis E. Merriman, who subsequently performed a large part of the work of the laboratory.

Case I. B., boy, aged six years. Was seen in consultation at Pittsfield, Mass., with Dr. Geo. Beebe on July 27th. For several weeks previous there had been a general outbreak of dysentery, characterized by frequent bloody stools, tenesmus, etc. The little patient had been very sick and was seen on the sixth day of his illness. There had been very little fever, the highest point being 102 degrees. The child was exhausted and appeared very ill. He was having from ten to twelve movements during twenty-four hours. These were accompanied with some tenesmus. In character they were small, semi-fluid and composed of thick mucus tinged with blood. There had been no vomiting. A portion of one of the stools was put in a sterile test tube and two cover-glass slips were made from the stool and brought to Albany for examination. No blood was obtained and serum was not employed. The child made a rapid and uneventful recovery. A point of particular interest in this case was that the attending physician, Dr. Beebe, shortly after contracted the disease and had a severe attack of dysentery. Unfortunately no examination was made of his stools.

The test tube containing the fæces was received at the laboratory three hours after the passage of the stool, and serial agar plate inoculations were made and placed in the incubator. Examination of the cover-glass preparations made of the fresh fæces, and others from the material in the test tube showed the presence of a considerable number of pus cells and a small number of bacteria resembling colon bacilli. Without going into further details of the laboratory work on this case we may say that the dysentery bacillus was isolated practically in pure culture and that subsequent tests showed it to belong to the type fermenting mannit with the production of acid. It was agglutinated by two samples of "Harris" antidysenteric serum in dilutions of 1-40 or less, but was not affected by those of 1-100 and over in several tests.

Case II. E. C., girl, aged seven years. Was taken acutely and suddenly sick during the night of August 13th. The mother stated that the child had eaten a green apple the afternoon before. The child was taken with vomiting and diarrhœa. She was in a state of stupor when first seen. The temperature was 103.4 and the pulse 150. The movements were offensive and contained mucus tinged with blood. A dose of castor oil was administered. In the evening the temperature rose to 104 and the child appeared very ill indeed. On August 14th—the second day of the attack—ten cubic centimetres of serum (Harris) was injected. The movements increased in frequency and there was little change in the condition of the child. She was continually on the bed-pan and cried if it was taken away. She had two or three offensive fæcal stools and a large number of movements consisting of thick gelatinous jelly tinged with blood. The temperature gradually fell to 100.6 on August 16th, and the general condition of the child had improved. The urine was faintly acid, 1004, no albumen. On August 20th she was practically well and sat up in bed playing with her dolls. The movements were green, but contained neither blood nor mucus.

It was learned some time afterwards that her father had been out at

Rensselaerville where there had been some cases of "bloody dysentery" and had himself contracted the disease. A few days before the little patient had been taken sick he had come home on a visit and had consulted a physician on account of his diarrhœa. No quarantine was kept and the mother cared for the child. Four other children in the same family were constantly exposed to the disease, but did not catch it.

Plates were made from the fæces of this case on August 14th, one and one-half hours after passage. From them dysentery bacilli were isolated in large numbers. The proportion of dysentery to colon bacilli on the plates was over two to one, no other bacterial form being present. The examination of eleven colonies of dysentery bacilli on the original plates resulted in demonstrating that all belonged to the so-called acid type.

A sample of blood serum taken from this case on August 14th before the injection of the antidysenteric serum failed to agglutinate the organisms isolated from the stools. The organism isolated, however, was agglutinated by two lots of "Harris" serum in dilutions of 1-240 and less.

Case III. James F., male baby, age four months. Was admitted to St. Margaret's House on August 3rd with the following history. The child had been fed on condensed milk since birth. For a week before admission had had a severe diarrhœa called "bloody dysentery" by the mother. On admission the temperature was 104.2. The baby weighed nine pounds nine ounces and the face and scalp were covered with seborrhœaic eczema. There was severe intertrigo about the buttocks which bled easily and this might have accounted for bloody stools. The movements numbered seven in twenty-four hours and were light green with much mucus. The child had repeated convulsive-like movements of the face and limbs. The temperature fell and the number of the stools diminished, but the child died on August 9th, six days after admission. No autopsy was permitted.

A specimen of the freshly passed fæces of this case was plated on August 3rd in the usual manner. Cover-glass preparations from the fæces showed the presence of large numbers of streptococci and some colon-like bacilli. The subsequent examination of large numbers of the colonies on the agar plated failed to show any dysentery bacilli.* The colonies were exclusively colon bacilli, the streptococci not developing.

Case IV. Roy W., boy, age four weeks. Had hereditary syphilis. Was admitted to St. Margaret's House on August 11th. On August 23rd had a convulsion. The stools were green, containing much mucus but no blood. These numbered about six in twenty-four hours. The baby grew worse and ran a subnormal temperature. He was kept alive by hot saline infusions and stimulants and finally recovered.

Stools from this case were examined bacteriologically within an hour of their passage on August 22nd and 23rd. From sixteen plates one hundred and two colonies were examined, and proved to be colon bacilli and a few white stapylococi.

Case V. Girl, age nine months. Poor hygienic conditions. Fed on grocery milk for the past month, but had been fed on breast milk for eight months. Was seen on September 3rd. Child did not appear sick and had a normal temperature. The mother stated that for several days previous the child had had diarrhœa and about ten or twelve stools in twenty-four hours. The stools were green and contained much mucus, which in places was tinged with blood. The child made a rapid recovery on dietetic treatment. This little patient did not have the prostration or tenesmus one would expect in dysentery. The mucus also was not of thick jelly-like appearance.

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* The methods of examination and confirmatory tests recommended by Flexner were rigidly followed in all work on these cases.

A specimen of fæces, passed two hours previously, was examined on September 3rd, and from thirty agar plates one hundred colonies were transplanted and studied, but none showed the characteristics of dysentery bacilli.

Of these five cases only the first two are considered of a character suited for investigation. In the other three there were either severe complications or the diarrheal disease was extremely mild. There were a very few other cases of diarrhea, with equally unsatisfactory aspects, in Albany during the summer but they were not available for study. There existed, however, no well defined series of cases of summer diarrhea such as could have been considered worthy of examination and thorough investigation. The first two cases from which the dysentery bacillus was isolated were cases of true dysentery, the first (Pittsfield case) being clearly one out of an epidemic of that disease. The other case is of interest as being the only case during the summer in Albany in which it could be ascertained in a satisfactory manner that true dysenteric symptoms were present, and it is especially interesting that the attack should have started three or four days after the return of the child's father from a region in which true dysentery was to exist, and himself suffering from a diarrhea. It would seem to be altogether likely that the disease was transferred from the father to the child.

It is interesting to note that the cases of true dysentery outside of the large cities seem always to be confined to local epidemics, and that other places apparently under the same meteorological conditions, and with no better, if as good, hygienic surroundings are entirely free from the disease. It would seem to be highly desirable in the endeavor being made to solve the problem of the relation of the Bac. Dysenteriæ to the etiology of the summer diarrheas of infants, to make a thorough study of a series of cases of summer diarrhea, if such could be found, occurring in some more or less isolated locally where dysentery in adults had not occurred in several years, and where a recent introduction of the dysentery bacillus from outside places in such a manner as to permit of the infection of any number of children would be a very unlikely occurrence. We had hoped that such a condition of affairs might exist in some of the institutions in Albany during the last summer, but our expectations were not realized.

It is impossible to say whether the antidysenteric serum used in the one case of true dysentery did or did not have a beneficial effect. If it did assist in effecting the improvement noted in the case two days after its administration this action occurred later than one would naturally expect it to take place.

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27.	**Shiga.**	*Centralblatt für Bakteriologie, Erste Abt.*, xxiv, No. 24, s. 913.
28.	**Levy and Pfersdorff.**	*Deutsche Med. Wochen.*, 4 Dec., '02.
29.	**Couradi**	*Deutsche Med. Wochen.*, 28 Feb., '03.
30.	**Neisser and Shiga.**	*Deutsche Med. Wochen.*, 22 Jan., '03.
31.	**Rosenthal.**	*Centralblatt für Bakteriologie, Erste Abt.*, Referate, Bd. xxxiii, No. 15, 16.
32.	**Shiga.**	*Deutsche Med. Wochen.*, xxvii, s. 741, 765, 783.
33.	**Kruse.**	*Deutsche Med. Wochen.*, 1903, No. 1 and 3.
34.	**Gay.**	*Univ. of Penna. Med. Bull.*, Vol. xv, No. 9, and Vol. xvi, No. 5, 9.
35.	**Shiga.**	*Zeit. für Hygiene*, Bd, xli, No. 2, 24 Oct., '02.
36.	**Hastings.**	*Loc. Cit.*

CYSTS OF THE MESENTERY.

By ALVAH H. TRAVER, M. D.,

Instructor in Surgery and Assistant Demonstrator of Anatomy, Albany Medical College.

Cysts of the mesentery are of comparatively rare occurrence. I have been able to find but 145 cases recorded, and many of these were discovered at post-mortem.

In arriving at a diagnosis the common diseases are the ones we are more apt to think of, while the rare ones that we seldom, or perhaps never see, are least apt to occur to us, so it may be of benefit to record the following case, that recently came under my care, with the idea of bringing to mind the possibility of cyst of the mesentery when making a differential diagnosis of abdominal tumors, or in intestinal obstruction the possibility of mesenteric cyst being the causative factor, as it was in the case I am about to describe.

No attempt will be made to give a resumé of the various recorded cases, which can be obtained by reference to the bibliography at the end of this paper.

The history of the case is as follows:

H. O., male, aet. five years.

Family history: Father died at twenty-nine, of grippe; mother living and well. There is no history of tumors in the family, except that a grandfather died of a "tumor of the bowels," presumably cancer.

Patient's history: He has had none of the diseases of childhood, and has never had any severe illness. About two years ago, while playing, he received a severe kick in the abdomen. He complained of abdominal pain for a few days then seemed as well as usual.

Present illness: In February the child's mother noticed that his abdomen seemed larger than normal. A physician was consulted, who said that "there was some fluid in the bowels which would disappear if the child's bowels were made to move freely." Various cathartics were given without effect, and the child was brought to me March 2, 1903.

Examination: The child was rather under size, and poorly nourished. The abdomen was very prominent, and palpation showed a soft, elastic tumor situated in the umbilical region. This tumor was freely movable from side to side and slightly so upward and downward. On percussion the tumor was dull and completely surrounded by resonance. The temperature and pulse were normal. Urine 1.015, acid, albumin and a few casts found present.

A diagnosis was made of cystic tumor of the mesentery or omentum and operation was advised. The mother agreed to send the patient to the hospital for operation, but this she did not do.

and I heard nothing further regarding the case until July, 7, 1903. At this time I obtained the following history: For the past month the patient had been somewhat constipated. On July 1st he was taken with severe abdominal pain and vomiting. He had vomited frequently since and for the last two days the vomitus had been of a dark color and very bad odor. The bowels had not moved since July 1st.

Examination: The child's appearance was bad. The pulse was 140 and of poor quality. The abdomen was very distended, but the tumor could not be directly felt. The diagnosis was made of intestinal obstruction, complicating the previous tumor. The mother was told that the only chance of saving the child's life was an immediate operation. Now that the child was in practically a dying condition the mother was anxious that an operation be performed.

Operation: A median incision was made below the umbilicus. The tumor presented in the incision. Examination showed it to be a cyst of the mesentery. The cyst had become so twisted on itself that nearly a complete turn was formed in the bowel, causing intestinal obstruction. The intestine involved was soft, of a dark color, and its peritoneum had lost its glistening appearance. Three smaller cysts were also present. Owing to the fact that the obstruction had lasted a week, and the bad appearance of the bowel, and the multiple cysts, it was thought best to resect the part of intestine involved. Four inches of bowels were removed and end-to-end anastomosis done with the Murphy button. This was reinforced with Lembert sutures. The abdomen was closed with silkworm gut sutures and standard dressing applied.

The patient stood the operation fairly well and got along nicely until three, P. M., of the second day, when his pulse suddenly became rapid and weak and he died at eight P. M., forty-seven hours after operation.

The autopsy showed satisfactory condition of abdomen. The button had held nicely and there were no symptoms of peritonitis.

The Bender Laboratory report by Dr. George Blumer of the specimen examined was as follows:

OTTO: Albany Hospital. Service of Dr. Traver.

The specimen consists of two cysts, one of them in a partially collapsed condition, the other completely filled.

Lying on the anterior surface of the larger cyst for the most part, or to a lesser extent on the anterior surface of the smaller cyst, is a strand of intestine, which judging from its size is the small intestine. The intestine is intimately adherent to the cysts but does not communicate with them. The larger cyst is perfectly globular, nine and one-half centimetres in diameter, the smaller cyst is also globular and three and one-half centimetres in diameter. The outer surface of both cysts is smooth for the most part; there are a few torn adhesions over the larger cyst. The surface is covered by a network of blood vessels, somewhat tortuous in arrangement. This is more marked over the larger than it is over the smaller cyst. The cyst walls are quite uniform in thickness. The walls of the larger cyst average about a millimetre, and are apparently composed of connective tissue. The interior of the larger cyst is lined by a grayish-white cuticular membrane. The contents of the larger cyst consists of ten fluid ounces of an opalescent reddish-brown cloudy fluid, the opalescence being due to innumerable refractive bodies which are held in suspension in the fluid. The walls of the small cyst are about half the thickness of those of the larger. The contents are similar but lighter in character. There is no communication between the two cysts. One end of the intestine which runs over the surface of the cyst is at least two or three times greater in diameter than at the other end. There is a constriction between the two ends.

ANATOMICAL DIAGNOSIS: Multiple cysts of the mesentery.

Examination of the fluid removed from the larger cyst shows that it is alkaline in reaction with a specific gravity of 1020. On boiling it coagulates solid with albumen.

Macroscopic: The fluid contains numerous numbers of cholesterin crystals, and few large cells containing granules of pigment, which appear to be blood pigment.

Microscopic examination by Dr. R. M. PEARCE: Thin wall of hyaline fibrous tissue containing very few cellular elements. Along the outer wall are dense zooglea of bacteria, cocci and leptothrices. These occur to a less extent on inner wall and penetrate throughout tissue. It is evidently a post-mortem contamination.

Cysts of the mesentery are of the following varieties: Serous cysts, chyle cysts, hydatid cysts, blood cysts, dermoid cysts and cystic sarcoma.

Serous cysts occur both in the mesentery and mescolon. They are caused by dilatation of a lymphatic vessel, probably resulting from some inflammatory disturbance that results in obliteration of the vessel. They contain a clear, straw-colored fluid. The specific gravity is 1.015; strongly alkaline in reaction; contain albumin.

Chyle cysts are caused (*a*) by dilatation of mesenteric vessels; (*b*) degenerated lymphatic glands; and (*c*) embryonic cysts that have become filled with chyle. Chyle cysts are more often found than any of the other varieties, and are often multiple. They contain a creamy white or yellowish liquid, alkaline in reaction, and with specific gravity of 1.012-1.020.

Hydatid cysts have the same characteristics as hydatid cysts found elsewhere. They contain a clear, watery fluid, are strongly alkaline, and have specific gravity of 1.007-1.010, without albumin. They contain a large amount of chlorides.

Blood cysts are nearly always traumatic, resulting from hemorrhage into the mesentery. They occur most often in men.

Dermoid cysts are probably many times primarily ovarian. They never occur in men.

Cystic sarcomas are not true cysts but are tumors that have become cystic.

History: Cyst of the mesentery was first described in 1507 by Benevieu, who discovered one post-mortem. It was in 1850 that the first case was operated on and that was through a mistaken diagnosis. It was not until 1880 that mesenteric cyst was diagnosed and operated upon.

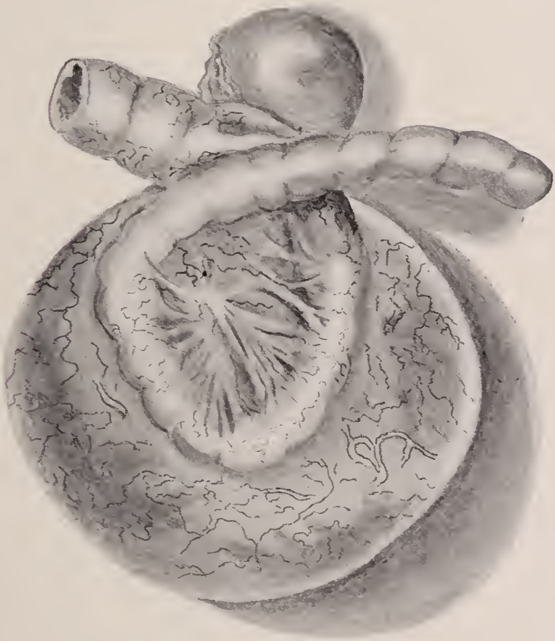
Characteristics: Mesenteric cysts occur at all ages. A case is recorded in a child four years of age. (Duchaset). Another is described that occurred in a patient eighty years of age. In size they vary from very minute cysts to one weighing forty pounds. Cysts are most often single, but there may be many, especially the chylous variety, of which fifty have been found in one patient.

Symptoms: In case the cysts are small no symptoms are present. In large cysts symptoms due to pressure are found as pain and constipation, or, as in our case, intestinal obstruction. Emaciation occurs as a late symptom, probably due to interference with the lacteals. The tumor is most prominent near the umbilicus. It is spherical, soft, and fluctuation may be present. It is freely movable from side to side and somewhat so upward and downward. It may, in some cases, be twisted around its central axis to a complete turn. It is completely surrounded by resonance and may have a resonant band crossing it, due to the passage of the intestine over the surface of the tumor.

Treatment: Any cyst of the mesentery sufficiently large to cause symptoms demands operation. Various operations may be performed: (*a*) Aspiration is advised by Murphy as it is easily performed, practically free from danger, and gives twenty-five per cent. of recoveries. (*b*) Enucleation of the cyst may be performed if only a small part of the mesentery is involved and the intestine is in good condition. This gives a mortality of fifty-two per cent. (Bequin.) (*c*) Opening the cyst and attaching it to the abdominal wall, with drainage, is indicated in cases that would

To Illustrate Dr. Traver's Article on "Cysts of the Mesentery."

Albany Medical Annals, January, 1904.



not stand a long operation. This gives a mortality of five per cent. (Péan.) (*d*) Resection of the bowel is required in neglected cases in which the vitality of the bowel has become destroyed, as had occurred in the case I have described. A similar case is reported by Sutherland in which the cyst, by pressure, caused the bowel to become gangrenous, resulting in peritonitis and death of the patient.

Resection of the bowel for mesenteric cyst is a severe operation, because of the necessary interference of the lacteals, and should be performed only in case the vitality of the bowel is destroyed. This operation has been successfully performed by Jessett for mesenteric cyst and several operators have successfully performed resection of the bowel for solid tumors of the mesentery.

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Clinical and Pathological Notes

A Case of Sub-Cutaneous Injection of Paraffin in the Correction of Nasal Deformity. *By* ARTHUR G. ROOT, M. D.,

Clinical Professor of Diseases of the Throat and Nose, Albany Medical College,
Member American Laryngological, Rhinological and Otological Society,
Member British Laryngological and Rhinological Association, &c.

The restoration to normal appearance of the sunken nose has always been a perplexing problem, but through the sub-cutaneous injection of paraffin most gratifying and satisfactory results have recently been attained.

The procedure is as follows: Paraffin, with a low melting point, is prepared and put up in sterile tubes. When it is required for use the paraffin is taken from the prepared test tube, placed in a small, closed tin receptacle, is then placed in a small hot-water bath and boiled. This process insures thorough sterilization of the paraffin, after which it is allowed to cool to about 115° F. It is then drawn up into the syringe, which may be sterilized in the same water bath with the paraffin. When the proper syringe is used it is not necessary to have the paraffin much warmer than the temperature of the room, as the screw force exerted upon the piston rod is sufficient to force the paraffin, even when at a temperature of 90° F. or less. The principal requisite is to have the paraffin, syringe and needle all surgically aseptic, and that a specially-prepared paraffin be employed. The syringe consists of a metal barrel, and is constructed with a large diameter and short axis, so that dexterity in its manipulation will not be lost with the distance of the hand introducing the needle from the point of injection. The needle is short and slightly larger than the ordinary hypodermic needle. The piston and other parts of the syringe being made of metal obviates the necessity of washers, thereby rendering it more capable of sterilization, and thus lessening the danger of sepsis. The piston-rod is graduated in minims. Fitted on this rod is a metal thumb-screw which runs up and down and is made to screw in the other end of the cylinder, at the volition of the operator. When this thumb-screw is not fitted into the cylinder the piston works up and down, as in any other syringe, but when the thumb-screw is put into place it becomes necessary then to screw the piston down. By so doing the paraffin is gradually injected through the needle. When the paraffin is semi-solid

To Illustrate Dr. Root's Article on "A Case of Subcutaneous Injection of Paraffin in the Correction of Nasal Deformity."

Albany Medical Annals, January, 1904.

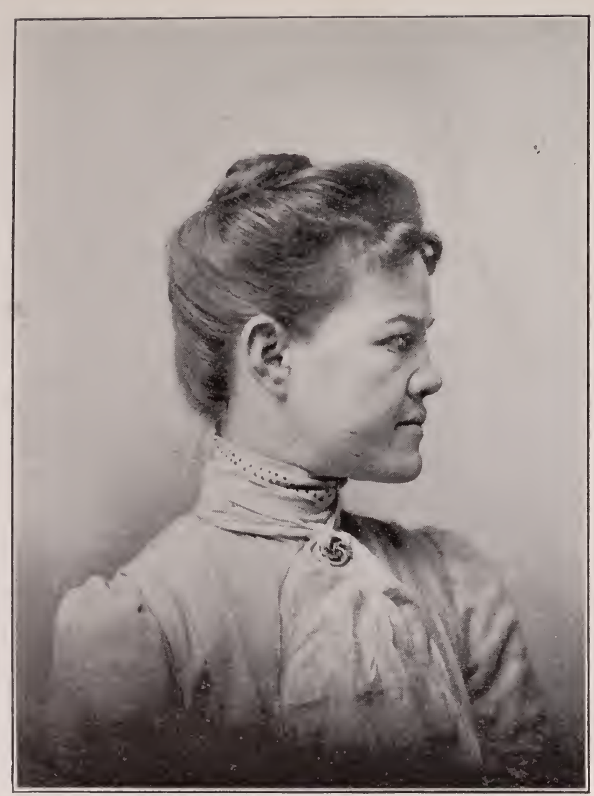

Plate 1

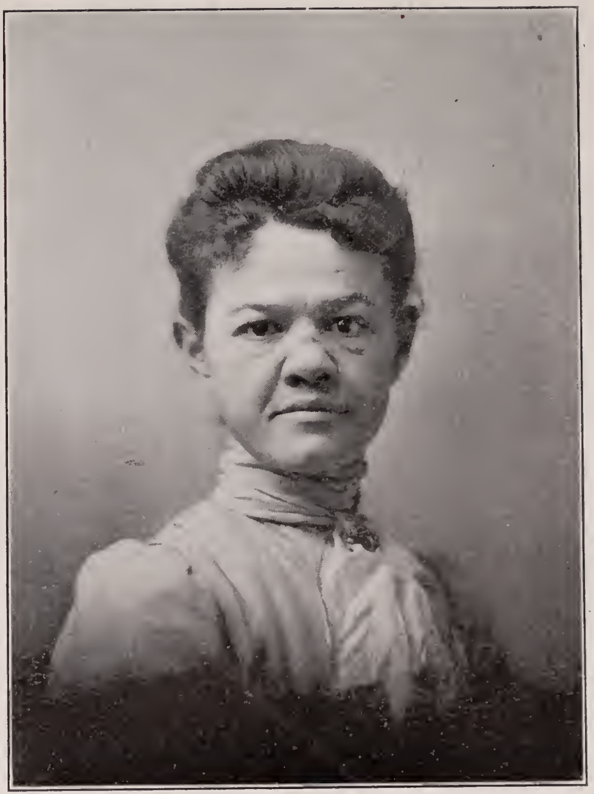

Plate 2

it winds up through the needle in a thin cylindrical thread, but with sufficient force to uplift any tissue not held down by fibrous adhesions. In performing the injection slowly ample time is allowing for molding and smoothing the paraffin into position.

The following history is illustrated by accompanying cuts, made from photographs of the patient before and after operation:

Mrs. B., æt. twenty-eight years; native of United States; first noticed trouble with nose three years ago. Complained of small sores in left nostril. She says that later a mass formed in the nostril and that she underwent some intra-nasal operation, the nature of which I do not know. Following this operation she continued to have a bloody discharge from the nose, and the latter gradally became deformed. She complains of nocturnal headache and continued discharge. I saw the patient first in October, 1902, and upon examination found an absence of nasal septum, both bone and cartilage, the two nasal chambers being thrown into one large cavity, the mucous membrane markedly ulcerated, with here and there crusts and tenacious secretions. Considerable odor was present. The patient was put upon iodide of potassium in five-grain doses, which dose was gradually increased to twenty-five grains, local cleansing with warm antiseptic douches, until the parts had assumed a more cleanly and healthful appearance, when I suggested to her the operation of injecting paraffin, for the purpose of relieving the extensive facial deformity. To this proposition she readily consented. I made my first operation on December 18, 1902, and the condition of the patient at that time is seen in photographs 1 and 2. A quantity of paraffin was injected and carefully molded, an associate holding the base of the nose at the inner angle of the eyelid, firmly, with his fingers, to prevent the creeping of the paraffin into the loose surrounding tissues, and to confine it to the point of greatest deformity. When it had been carefully molded to the required shape, height and width, ice packs were applied until the paraffin became perfectly solid.

Some hours after the operation the patient experienced considerable swelling of the face, extending over the eyebrows and on the forehead. This was quickly reduced by cold packs, applying the ice bag one hour on and one hour off. At the end of forty-eight hours the swelling had almost entirely disappeared.

It has not been necessary to do any subsequent operation, as the results seem entirely satisfactory.

This case is particularly illustrative of the excellent results that can be obtained by this method, from the fact that there was total destruction of both bony and cartilaginous septum.

The sub-cutaneous injection of paraffin is a procedure surrounded with so little difficulty, entailing so little danger, and promising so much, for the relief of this deformity, that it would seem to recommend itself quite universally.

Photographs 3 and 4 were taken January 15, 1903, and shows the condition of the patient resulting from the operation, which satisfactory condition still maintains.

Editorial

Ἀσφαλὲς καὶ ἔμπεδον ἔστω τὸ σὸν ἕδος. Ἐκ σκότου μὲν ἔξαγε
φάος, ἐκ δὲ πάθους ἀναψυχήν

The Annals Jubilee

The celebration of success is a custom as old as the human race. The display of exhilaration by the individual is represented more elaborately by the community, and the cry of joy of the former develops into the trumpet blasts of the latter, whence springs the word "jubilee," the symbol of exultation through the ages. At first ordained by Divine command, the Mosaic Jubilee was a half century festival, when labor was laid aside, contention ceased and universal freedom was proclaimed. In every fifty years was taken a period for rest and reflection and aspiration to higher purpose. The idea was later copied, but tainted by selfish desire, for the temporal benefit of the church. In the year thirteen hundred, Rome being poor, and the surrounding provinces opulent, Pope Boniface proclaimed a season of jubilee and indulgences, and pilgrims were encouraged to visit the Holy City and leave a trifling oblation. The period of the papal jubilee was afterward reduced to fifty, thirty-three and finally, twenty-five years.

The most notable jubilees of modern time were celebrated in honor of the fiftieth and sixtieth years of the reign of Victoria, covering important epochs in the advance of civilization. Another festival of great significance was the tribute to the achievements of Virchow, the father of scientific medicine. Thence was derived the custom of honorary volumes

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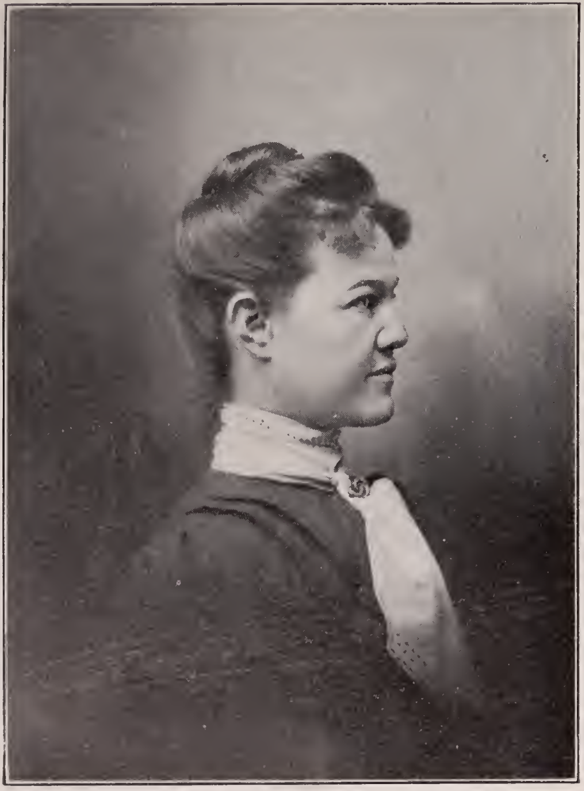


Plate 3

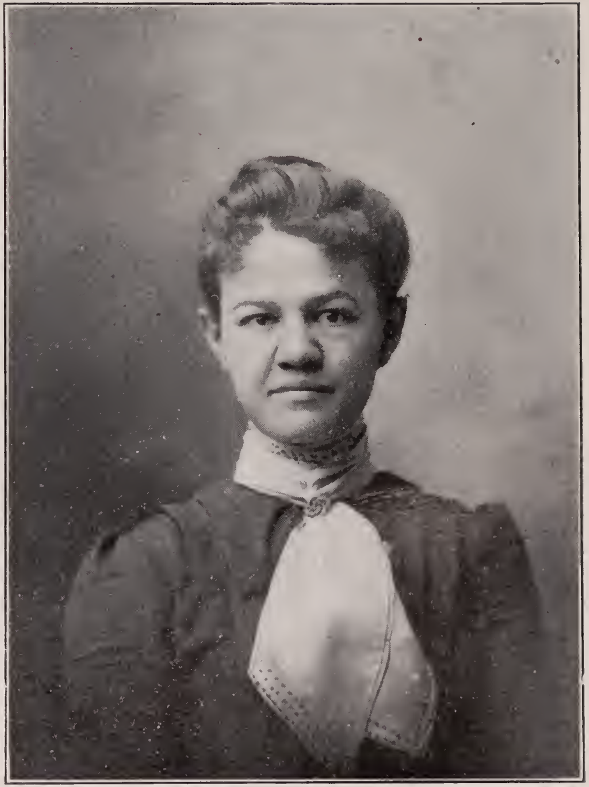


Plate 4

dedicated to leaders in our profession by their pupils and admirers. These "*Festschrifts,*" made up of contributions for the promotion of medical knowledge, typified the disinterested spirit in which lies the highest ideal of the physician. In America, Jacobi and Welch have been most appropriately honored. In Europe, Erb and others have been selected for this tribute by their co-editors, and various medical journals have exploited their resources, the principal events in their history and in the communities of which they have been the exponents.

In adopting the plan of a festschrift or jubilee number in celebration of its twenty-fifth year, the ALBANY MEDICAL ANNALS seeks to incorporate the spirit, as well as the form, of a commemorative medical publication. The history of the ANNALS, as given by its earliest editors, outlines the medical history of Albany for the period of which it treats, and incidentally touches upon the progress in which Albany has borne its part. The contributions from the different departments of our college and hospital reveal the standard of efficiency to which they have attained. They show the inspiration which comes from teaching, and the activities of the laboratories and clinics. They disclose the deeply seated determination to maintain a foremost position in the development of medicine and to utilize every means for painstaking investigation and accurate practice. They mean that the Master Word of Albany medicine is Work.

At a private medical dinner held not long ago in Albany the only toast proposed was to the "Unity of the Profession." The sentiment was warmly received, and the flourishing college, hospitals and laboratories testify to the coördinate activity of their physicians.

The late Professor Whitehorne, who held the chair of ancient languages in Union University, and whose attachment for the Medical Department was strengthened by the award of its diploma to his sons, prepared for the ANNALS the Greek motto which now graces its title. The present jubilee number justifies his expression, which we hope may long stand:

> "*Secure and lasting be thy abode! Out of darkness bring forth light, and out of suffering relief.*"

Scientific Review

RECENT INVESTIGATIONS OF SMALLPOX

1. Etiology of Variola (Preliminary Communication),
W. T. COUNCILMAN, G. B. MAGRATH and W. R. BRINCKERHOFF,
Journal of Medical Research, 1903, IX, 372.
2. Studies on the Etiology and Pathology of Variola,
R. G. PERKINS and G. O. PAY,
Journal of Medical Research, 1903, X, 163.
3. The Pathology of Smallpox,
W. R. STOKES,
Johns Hopkins Hospital Bulletin, 1903, XIV, 197.
4. A Study of the Contents of the Vesicles and Pustules of Smallpox,
JAY F. SCHAMBERG,
Journal of the American Medical Association, 1903, February 14, 439.
5. Streptococcus Pyogenes in Variola,
R. G. PERKINS and G. O. PAY,
Journal of Medical Research, 1903, X, 180.
6. Experimental Study of the Bacteriolytic Complement Content of the Blood Serum in Normal, Vaccinated, and Variolated Rabbits,
R. L. THOMPSON,
Journal of Medical Research, 1903, X, 63.
7. The Bacteriolytic Complement of the Blood Serum in Variola,
R. L. THOMPSON,
Journal of Medical Research, 1903, X, 71.
8. Bacteriocidal Action of the Blood Serum in Variola and in Varioloid,
R. G. PERKINS and G. O. PAY,
Journal of Medical Research, 1903, X, 196.
9. A Study of the Agglutinating, Hemolytic and Endotheliolytic Action of the Blood Serum in Variola,
W. T. HOWARD, JR.,
Journal of Medical Research, 1903, X, 157.

The past year has been marked by numerous investigations concerning the etiology of smallpox. It is a fact worthy of mention that the investigation under the direction of Councilman in Boston, and those of Howard and his colleagues in Cleveland have both been made possible through the liberal policy of the health departments of these respective cities.

1. The work of Councilman and his assistants is concerned entirely with the interpretation of the bodies found in the skin lesions. These small included bodies were described in 1892 by Guarnieri and later by Wasielewski, both of whom considered them to be protozoa of the type of microsporidia. They are

generally known as *Cytorcytes vacciniae,* the name given by Guarnieri. On the other hand, later investigators have considered them to be leucocytes or cell fragments included in epithelial cells, essentially products of degeneration peculiar to the disease. Councilman gives practically complete proof that these bodies are living organisms and has demonstrated the important phases of their life cycle. The bodies measure one to four microns in diameter and are found in the lower layers of the epithelial cells before the stage of vesicle formation is evident. They are structureless, and lie in small vacuoles. As the bodies increase in size granules appear lying within definite spaces. With the increase in size of the body, these spaces increase until a large central cavity is formed about the nucleus, which is not greatly altered. A reticular structure is now seen between the granules. The form of the body is irregular and suggests an amœboid character. A definite nucleus is not apparent. When the body becomes larger than the nucleus of the epithelial cell, segmentation takes place with the formation of small round bodies about one micron in diameter. These changes are best seen in the acute hemorrhagic cases or at the advancing edge of a young vesicle, and represent the extranuclear cycle of development.

At the period of segmentation the small intracellular bodies disappear and small round or oval ring-like bodies appear in the nucleus. These increase in size with the formation of a series of vacuoles around a large central vacuole; the rim of the latter staining more distinctly than other portions. One or more bodies may appear in the single nucleus. As the intranuclear bodies grow the vacuolar structure becomes less evident and small circular bodies, lying in fine vacuoles appear. The epithelial cell is now completely degenerated and may disintegrate, setting free the included bodies. These are surrounded by faint rings and are marked by a central dot and measure one to one and five-tenths microns in diameter. They are seen only with great difficulty. The writers regard these intranuclear bodies as the further stage of development of the intracellular body, representing a second cycle of development; that is, the spore-like bodies, products of segmentation of the intracellular stage, pass into the nucleus and there go through a second cycle, the intranuclear cycle.

Of great interest in connection with this interpretation is the work of Tyzzer, who, under Councilman's direction, investigated the organism of vaccinia. Bodies similar to those of the first cycle of smallpox were found in the vaccinated rabbit and calf. The complete cycle of the vaccinia organism corresponds to the primary intracellular cycle of the smallpox organism. The intranuclear forms were never found. In rabbits inoculated with the contents of variola pustules, bodies similar to those in vaccinia and the first cycle of variola were found.

Monkeys inoculated with contents of variola pustules develop lesions which must be regarded as variola, and in these the *intracellular* and *intranuclear* cycles are found, occurring in the same sequence as in man. The writers conclude that the organism studied is the cause of smallpox and of vaccinia; in the former disease passing through two cycles of development; in the latter through the primary cycle only. The entire development of the parasites in variola is concluded with the formation of the young vesicle. The spores are present in the contents of the pustules but cannot be distinguished by present staining methods from the debris. Forms of the intranuclear body have been seen which suggest that this cycle is sexual in character.

2. Perkins and Pay, utilizing the material of the Cleveland epidemic, have searched for the etiological factor in the contents of the skin lesions and in the blood. A most thorough investigation, supplemented by animal inoculations led them to the following conclusions:

Variola is not due to a sub-microscopic organism. The organisms described by some observers, Dombrowski, Ishagami, and by Funck are not organisms, but various forms of cell degeneration. The organism, or some form of it, is certainly present in the contents of the vesicles and pustules, but in some form in which it is indistinguishable from the cellular debris.

In view of Councilman's positive findings, it is only fair to say, that these observers did not undertake a complete histological examination of the skin. This work is now in progress.

Their synopsis of the autopsy protocols adds nothing essentially new. In a series of forty-five autopsies, the lesions were mainly those of any acute infectious disease. In eight out of twenty-seven males, the well-known necrosis of the testicles was present. Variolous regions of the larynx and trachea were found in thirty-three cases; of the œsophagus, in five.

3. Stokes gives the results of a study of material from a series of six autopsies, and of sections and cultures from six non-fatal cases. The material is not sufficient for very definite conclusions

and nothing new is added to our knowledge of the disease. The writer thinks that the secondary streptococcus infection, an almost constant feature of fatal smallpox, is responsible for many of the visceral changes, such as thrombosis, local necrosis, pulmonary lesions, etc.

4. Schamberg has examined, bacteriologically, the contents of the skin lesions in fifty-one cases of variola; eighty-two cultures were made and all but eighteen remained sterile. The streptococcus was found in thirteen; in ten of which it was in pure culture. Other organisms found were the staphylococcus pyogenes aureus and bacillus resembling the bacillus diphtheriæ. Of cultures made before the seventh day of the eruption, thirty-three out of thirty-four proved to be sterile. These cultural results differ from those of Ewing and Bergey, who found the streptococcus in eighty-seven and forty-two per cent. respectively of their cases. The writer concludes that the absence of secondary infection in the early stage of the eruption indicates that pustulation is not due to invasion by pyogenic cocci, but is the result in all probability of the micro-organism which produces the disease.

5. The prevalent idea of the great frequency of secondary streptococcus infection in smallpox is supported by the bacteriological study of Perkins and Pay. In thirty-eight of forty autopsies, the streptococcus were found distributed throughout the body in greater or less numbers. The streptococcus pyogenes aureus was found in about one-third of the cases. Blood cultures made before or just after death, contained streptococci in eleven of twenty cases examined. Thirty cultures made during life, from typical skin lesions at various stages of development, were sterile in all but four instances. Streptococci were found but twice. This is in marked contrast to the bacteriology of the internal organs at autopsy. In view of these results, the writers conclude that while streptococci are present in all or nearly all fatal cases, and in many which recover, they bear no etiological relation to variola and are not responsible for the pustulation of the skin lesion. The probable portal of their entry is the bronchial mucosa. To test the value of anti-streptococcic serum, several cases in which streptococci were found, by blood cultures, were treated by this serum. No uniform results were obtained. This is probably due to the fact, demonstrated by the writers, that the streptococci found in the blood and those found in the secondary lesions are

not identical, but vary markedly in certain constant characteristics. Anti-streptococcus serum prepared from one variety of streptococcus is therefore of no especial value in combatting the sequelæ of variola, which may be due to another or several other varieties of the organism.

6, 7 and 8. Thompson, Perkins and Pay have investigated the complement content of the serum of smallpox patients in the hope of explaining the tendency to secondary streptococcus infection. This was suggested by the work of Longcope, who found that in chronic wasting diseases, a loss of complement was not uncommon, and was therefore an explanation of the secondary and oftentime fatal infections, so common in these diseases. It seemed possible that the same condition might be found in variola. All these workers used the typhoid or colon bacillus, or both, as test organisms; first because they were more easily killed than the streptococcus and second, because the latter grows readily in the various sera used.

Thompson's first work dealt with normal, vaccinated and variolated rabbits. He found the bacteriolytic complement of normal rabbit's serum to closely coincide with that of human blood serum. Vaccination and variolation do not affect the bacteriolytic complement content of rabbit serum for the organism used. A similar investigation was made concerning the bacteriolytic complement of the blood serum of smallpox patients, with the following results:

A diminution of complement content was observed in early stages of the disease. A rapid return of the complement to normal occurred, in cases unattended by secondary infection. A failure to return to normal was seen in patients with secondary infection; and a progressive diminution in the complement content was found in those complicated with terminal septicemia.

From these results Thompson concludes that the specific infection causes diminution in complement (*i. e.*, diminution in bactericidal power of the serum) varying according to the severity of the attack; in mild cases such diminution may not be found. If the attack is severe the return of the complement content to normal may not occur and the patient enters the pustular stage with the bactericidal power of his blood serum greatly diminished. Under these conditions invasion by pyogenic cocci readily takes place.

Perkins and Pay working along the same lines reached somewhat similar results, but interpret them differently. Their conclusions are as follows:

In cases dying from variola in the first five or six days of the eruption, there is practically no loss of the complement. In patients dying after this time, in the complete pustular stage of the disease, there is a loss of complement which in general is in proportion to extent of skin involved. In cases dying after the disappearance of all symptoms due to variola, death being due to secondary infection, the loss of complement is fairly uniform, and probably identical with that observed in wasting diseases. In light cases, early or late, there is apparently no loss. The loss of complement has apparently very little to do with the secondary streptococcus infections but on the other hand, these infections, if long continued may lead to a very definite loss. It will be seen from this last conclusion that these investigators believe the diminished complement content to be the result and not the cause of the secondary streptococcic invasion; a conclusion opposed to that of Thompson. This, however, is merely a matter of interpretation and this view is not supported by previous observations of secondary infection associated with diminished complement content.

This question of complement content in disease generally is most important, not only as regards its relation to secondary infection, but also as regards prognosis, and it is only through the correlation of a large mass of observations similar to the above, that definite conclusions will be reached.

9. Howard has made a study of the action of the blood serum, of persons suffering from variola, upon red blood corpuscles and endothelial cells, in the hope of explaining the necrosis, hæmorrhages, and vascular lesions so common in variola. The serum of all types of variola was found to be agglutinative for corpuscles of both normal and variolous human beings and for rabbits. It has little, if any, hæmolytic action on the red corpuscles of human beings, and no dissolving action upon the endothelial cells of men, or the rabbit. The local vascular disturbances would therefore appear to be due not to the presence of cytolytic substances in the serum, but to some local influence.

RICHARD MILLS PEARCE.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, NOVEMBER, 1903.

Deaths

	1901	1902	1903
From Consumption	13	18	18
From Typhoid Fever	0	6	1
From Measles	0	0	1
From Scarlet Fever	0	0	1
From Whooping-cough	0	1	3
From Diphtheria and Croup	9	2	0
From Pneumonia	8	19	11
From Broncho-pneumonia	0	6	2
From Bright's Disease	13	18	23
From Apoplexy	10	6	9
From Cancer	8	13	14
From Accidents and Violence	6	8	9
Total number of deaths	124	156	145

Deaths in Institutions

	1901	1902	1903
Albany City Hospital	8	14	11
Albany Orphan Asylum	4	0	1
Child's Hospital	0	0	1
County House	3	6	3
Home for Friendless	0	1	1
Homeopathic Hospital	2	0	4
Hospital for Incurables	1	0	1
House of Good Shepherd	1	0	1
Little Sisters of the Poor	3	1	0
Public Places	2	0	2
St. Margaret's House	0	2	0
St. Francis De Sales Orphan Asylum	0	0	3
St. Peter's Hospital	3	3	4
Death rate	15.07	18.96	17.63
Death rate this year less non-residents			16.66

Marriages	73

Births at term	96
Premature births	3
Still births	6
Total	105

WORK OF HEALTH PHYSICIANS

Total number of assignments made	68
Total number of calls made	271
Total number of vaccinations made	16

INSPECTIONS

During the month, in the Bureau of Plumbing, Drainage and Ventilation, 115 inspections were made, of which sixty-two were of old buildings, and fifty-three of new buildings. Nineteen inspections were made of iron drains laid, sixteen of connections with street sewers, fifteen of tile drains, ten of cesspools, thirteen of wash basins, twenty of sinks, eighteen of bath tubs, seven of wash trays and thirty-five of tank closets. One hundred and one permits were issued, of which eighty-nine were for plumbing and twelve for building purposes. Seventeen plans were submitted, of which seven were of old buildings and ten of new buildings. Two houses were tested on complaint with peppermint test and three water tests were made. Sixteen houses were examined on complaint, and six complaints were found to be valid and ten without cause.

In the Bureau of Sanitation twenty-three complaints were made of nuisances, of which three were of privies, one of closets, one of drains, six of plumbing, two of water, one of filthy cellars, four of filthy premises, one of manure, one of garbage and one of odors. There were thirty-one inspections made and twenty reinspections. Twelve nuisances were found to have been abated on reinspection and four complaints were found to have been made without complaint.

CONTAGIOUS DISEASES

Cases Reported

	1901	1902	1903
Typhoid Fever	4	4	5
Scarlet Fever	5	5	7
Diphtheria and Croup	90	48	31
Chickenpox	7	12	3
Measles	5	1	2
Whooping-cough	0	2	1
Totals	111	72	50

Fumigations:

Houses.................... 40 Rooms.................... 117

Number of days quarantine for diphtheria:

Longest....... 39 Shortest...... 6 Average...... 15

Number days quarantine for scarlet fever:

Longest....... 58 Shortest...... 25 Average...... 36

ANTITOXIN

Total number of cases of diphtheria reported		31
Cases in which antitoxin was used	24	
Cases in which antitoxin was not used	7	
Deaths after use of antitoxin	3	

The deaths are as follows: Female, three years nine months, sick five days, antitoxin was used on the fourth day; female, two years two months, sick one day, antitoxin used shortly before death; male, twenty-seven years, sick six days, antitoxin used on the sixth day, died of œdema of the glottis.

BENDER LABORATORY REPORT

Cultures for Diphtheria

Initial positive	Initial negative	Release positive	Release negative
22	54	14	19

Failed	2	
Total		111

Examination of Sputum for Tuberculosis

Initial positive	2	
Total		2

Widal's Test for Typhoid Fever

Initial negative	1	
Total		1

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Society was held in Alumni Hall on Wednesday evening, December 9, 1903. The meeting was called to order at 9 P. M. In the absence of the President and the Vice-President, Dr. E. A. Bartlett acted as President *pro tem.*

The following members were present: Drs. Bartlett, Capron, Cook, Curtis, Davis, Henessey, Hinman, Jenkins, Lempe, Lipes, Macdonald, Mereness, Papen, Shaw, Sweet, M., Traver, Vander Veer, E. A., and several guests.

1. Reading of minutes of last regular meeting. The minutes as printed in the December ANNALS were accepted.

2. Reading of minutes of special meetings. No special meetings had been held.

3. Application for membership. No names were presented.

4. Reception of reports and resolutions. Dr. F. C. CURTIS presented the following:

Memorial of Charles Hogeboom Porter, M. D.

Presented by Dr. F. C. Curtis

It is the desire of this Society that note shall be made of the death of one of its oldest members since our last meeting, Dr. Charles H. Porter, who although for a few recent years absent from our Society in search of health, has still been a life-long member of our medical body. After a lengthy life of effective work in the profession of medicine he passed away November 21, 1903. It is fitting at this regular meeting of the Medical Society of the County of Albany, of which he has been a member since 1859, that we, his associates for a long or short period, should express our regard for his memory.

Of the men who joined this Society prior to 1860 there are not more than two or three now living, and indeed I think there are but two: Dr. S. H. Freeman and Dr. Charles H. Smith, the latter of whom became a member the same year; nor are any others living who united with the Society prior to 1866.

Dr. Porter was not a native of Albany, having been born in Columbia county, in the town of Ghent, November 11, 1834. The mention of Claverack appears in the earliest records of Albany, and the Dutch seem to have been much taken with the "clover reaches" of that locality, stretching back from the river at Hudson (long known as Claverack Landing) to the foot-hills or rises of the Berkshire Hills. To this day that region is more Dutch than Albany itself. Dr. Porter's mother was Dutch in ancestry, whilst his father was, as easily transpired at this point of touch of the two dominant founders of our northern race of to-day, of New England in his descent and remotely of Old England. His paternal grandfather, Rev. David Porter, D. D., of the sixth generation in this country, served in the Army of the Revolution.

Dr. Porter graduated from Yale College in 1855, and received a degree of A. M. in 1857; and from the Albany Medical College in 1859. He settled in this city. He had a predilection for scientific work, chemistry especially, and devoted special attention early, and late in life as well, to medical jurisprudence. He was an expert witness in not a few legal cases, and I have heard that he was an ideal witness in court.

The War of the Rebellion broke out soon after his graduation and he went early into the service, at first as assistant surgeon of the Fortieth New York Volunteers; soon after, in 1862, he received the appointment of surgeon of the Sixth Regiment of New York Heavy Artillery, and remained with it until mustered out in 1865. During these years he was always in active service, participating in the various campaigns of the Army of the Potomac and of the James; and at times he was on detached service as inspector and medical director of army hospitals. For a considerable number of years after the war he was pension examining surgeon in this district.

Having resumed the work of private life in Albany, he entered actively into the work of a general practitioner, with the good-will of those of his army associates, who likewise came home to this vicinity. His office was for many years on Eagle street, opposite the Medical College, and later on Lancaster street, at the corner of Swan. His interest was pre-eminently in medical jurisprudence and the scientific matters connected with that. For two years he was Professor of Chemistry in the Vermont Medical College, and for some years of chemistry and medical jurisprudence in the Albany Medical College. From 1872 to 1874 he was attending surgeon of St. Peter's Hospital. In the State Medical Society, of which he became a member in 1869, Dr. Porter was conspicuous by long service as treasurer, for he filled the office for twenty-nine years and his charge of it was a model of exactness.

Exactness characterized him in every direction; he never came short in the precision of his work, and in the measure of his duty to others in every detail he was mathematically correct. Possibly his work in chemical analysis, often used in poisoning cases before the courts, helped to drill him in this, but it was more likely constitutional with him. I have never known one in whom it was a more marked element of character. He was methodical, orderly, conservative, not quick to change opinion. and not very outspoken. He was a man of not many words, and was always reserved in what he said, especially about others. One had to get rather near him to know him, and then he was found companionable, interesting and instructive. It is the regret of all who knew him that some years of ill-health have now ended in his final departure from among us.

Dr. Macdonald, in moving the adoption and placing on the minutes of the memorial presented by Dr. Curtis. said that it was his great pleasure to have known Dr. Porter very intimately. All that Dr. Curtis had said was true and not exaggerated. He would like to call special attention to the methodical methods of life which characterized Dr. Porter. He was a conscientious, learned man, who understood his cases thoroughly and gave careful, precise estimation of all the elements entering into his life-work. He was most careful in prescribing medicines, and few men had a more thorough knowledge of materia medica. Dr. Macdonald had been both with and against him in medico-legal cases. He always gave most careful testimony and was slow in giving his opinion. His testimony carried great weight with the jury and it always had a good basis. He was a good practitioner of medicine and was greatly beloved by his patients.

The memorial was seconded and carried.

5. *Reading of papers.*

Dr. H. Judson Lipes read a "Report of the Work of the Special Obstetrical Department of the Albany Guild for the Care of the Sick Poor," and demonstrated a student's obstetrical bag and operation outfit. At the close of Dr. Lipes's report the President *pro tem.* opened the meeting to discussion.

Dr. Jenkins said that the Guild had certainly been of great benefit to the students and he thought great credit redounded to the originators of this special department of the Guild. He enjoyed listening to Dr. Lipes's account of the work and thought it would greatly enhance the value of obstetrical teaching in the College.

Dr. CURTIS contrasted the conditions of obtaining practical obstetrical experience when he was a student. At that time there was an organization that supplied material for students. He related his experience at his first obstetrical case on Water street, New York City. He went with another student, and there was no trained nurse. A student always feels something is going wrong while attending his first confinement. He had that fear and almost went on his knees imploring the attending physician to come around to attend the case as he was sure something serious was about to happen. The attending physician was unmoved by the entreaties, so Dr. Curtis tried to get no lesser light than T. Gaillard Thomas. But even Dr. Thomas could not come. However the baby came in course of time, in a natural way, with no ill results. He thought the Guild was a great thing for Albany and was one of our most beneficent organizations.

Dr. DAVIS read a paper on St. Peter's Hospital. There was no discussion.

Dr. A. TRAVIS read a paper on "Thirty Selected Cases of Appendicitis." There was no discussion.

On motion, the meeting adjourned.

HENRY L. K. SHAW, *Secretary*.

E. A. BARTLETT, *President pro tem*.

Medical News

Edited by Eugene E. Hinman, M. D.

ALBANY MEDICAL COLLEGE ALUMNI ASSOCIATION OF NEW ENGLAND.—A meeting of the New England Alumni Association of the Albany Medical College was held at the Hotel Waverly, Springfield, Mass., Tuesday, November 24, 1903, and was attended by about twenty physicians, residents of Massachusetts and Connecticut. It was a most enjoyable occasion. Until this year all meetings of the association have been held at Hartford, but it was thought advisable to transfer our meeting plan to Springfield to interest graduates in that section in the work of the association, and the response was hearty and most encouraging.

At the business meeting called at 5:30 the following officers were elected for the ensuing year. President, Dr. Thomas D. Crothers ('65), of Hartford; vice-president, Dr. A. E. Abrams ('81), of Hartford; secretary, Dr. W. G. Murphy ('90), of Hartford; treasurer, Dr. John O'Flaherty ('64), of Hartford, and a Board of Governors composed of Dr. C. R. Townsend ('94), of Bridgeport, Conn.; Dr. H. W. Van Allen ('90), of Springfield, Mass.; Dr. W. W. Scofield ('82), of Dalton, Mass.; Dr. George J. Holmes ('82), of New Britain, Conn.; Dr. E. Wright ('41), of Lee, Mass., and Dr. A. L. Newton ('98), of Northfield, Mass.

After the business of the meeting had been disposed of and plans for the ensuing year discussed the members were invited to the dining-room where a neat, inviting banquet had been prepared. When the inner man had been fully satisfied Dr. Crothers asked the attention of the members to a resolution which he wished to present, extending greetings to our oldest member and also one of the oldest living graduates of the college, Dr. Rial Strickland ('39), of Enfield, Conn. The resolution was passed unanimously. Dr. Strickland was elected an honorary member. Dr. Ensign ('57) was then called upon and spoke entertainingly of the college and faculty when he was a student. Dr. Wright ('41) responded to the toast, "Old Times in Medicine," and Dr. O'Flaherty ('64) spoke of his college and army experience. He was one of the first of his class to volunteer and was immediately appointed assistant surgeon. Dr. Richardson, representing the faculty, outlined the general work of the college and the urgent need of a new college building and laboratory. His remarks were listened to with close attention and the interest of his audience was evident. Dr. Scofield, of Dalton then referred to his experience as president of the Alumni Association and seconded Dr. Richardson's remarks in a most enthusiastic and entertaining manner. Dr. Holmes, of New Britain, related some of his early experience in practice, and in a forceful way emphasized the gratitude all graduates owed to our beloved college and faculty. Dr. Abrams spoke of admission requirements necessary for successful work in any college, and said we should be most particular in recommending young men to study medicine. Dr. Abrams proposed that the association hold an informal meeting in June, 1904, and invited the members to his home for that purpose. His invitation was accepted. Dr. Murphy, secretary, spoke of the possibilities of growth of the association in New England. Other speakers were Drs. Van Allen, Clark, Collins, Smith of Westfield, Broga and Mead, and all were enthusiastic in the work of the college, and their affection for the college was evident.

It was voted that the annual meeting be held on the second Tuesday in October of each year, and that the next meeting, 1904, be held in Springfield. It is the desire and purpose of the association to enroll as members all graduates now practicing in New England, and a cordial invitation is extended to all. During the coming year an effort will be made to interest graduates in the association. Anyone desiring to join may send his name, address and year of graduation, with one dollar annual dues, to the secretary, Walter G. Murphy, 75 Pratt street, Hartford, Conn.

UNION COLLEGE ALUMNI ASSOCIATION OF NEW YORK CITY.—This association held its annual reunion and banquet Thursday evening, December 10, 1903, at the Hotel Manhattan. The reunion was a very pleasant occasion and the various departments of Union University were well represented. The reunion and business meeting were held at six o'clock in the hotel parlors. Dinner was served promptly at seven o'clock.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR; STATISTICS FOR DECEMBER, 1903.—Number of new cases. sixty-eight. *Classification of cases:* District cases reported by health physicians, eleven; charity cases reported by other physicians, twenty-nine; total number of charity cases, forty. Patients of limited means, twenty-eight; old cases under treatment, twenty-three; total number of patients under nursing care, ninety-one. *Classification of diseases* (new cases): Medical, twenty-three; surgical, eight; gynæcological, one; throat and nose, one; obstetrical, nineteen mothers and sixteen children under professional care. Four contagious diseases in the medical list. Transferred to hospitals, six; deaths, four.

Special Obstetrical Department: The head obstetrician and three attending obstetricians in charge of cases; medical students in attendance, five; Guild nurses, six; patients, seven. Number of visits by head obstetrician, twenty-three; by attending obstetrician, fifteen; by medical students, fifty-four; by Guild nurses, seventy-four. Operations, two.

Visits of Guild Nurses (all departments): Number of visits, with nursing treatment, 720; for professional supervision of convalescents, 201; total number of visits, 921. Cases were reported to the Guild by the city physician, by four health physicians and by twenty-three other physicians.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The annual meeting of this society will be held in Albany, January 26 and 28, 1904. The president has appointed the following business committee to prepare the program: Dr. H. A. Fairbairn of Brooklyn, Dr. G. R. Butler of Brooklyn, and Dr. Andrew Macfarlane of Albany.

LECTURES ON ALCOHOL AND OPIUM INEBRIETY.—Dr. T. D. Crothers, of Hartford, Conn., professor of mental and nervous diseases at the New York School of Clinical Medicine, will deliver a course of four lectures on "Inebriety from Alcohol, Opium and other Narcotics," January 5 and 6, 1904, at 4 P. M. and 8 P. M., in the hall of this school, 328 West Forty-second street, between Eighth and Ninth avenue, New York City. The public are cordially invited to attend.

ROENTGEN RAY SOCIETY.—The annual meeting of the American Roentgen Ray Society was held in Houston Hall, University of Pennsylvania, Philadelphia, December 9th, 10th and 11th. More than two hundred members were in attendance, including prominent medical men from all sections of the country.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The thirtieth annual meeting of the Mississippi Valley Medical Association will be held at Cincinnati, O., October 11, 12 and 13, 1904. Dr. B. Merrill Ricketts has been elected chairman of the Committee of Arrangement. The following are the officers of the association elected at Memphis this year: President, Edwin Walker, M. D., Evansville, Ind.; president-elect, Hugh T. Patrick, M. D., Chicago, Ill.; first vice-president, Bransford Lewis, M. D., St. Louis, Mo.; second vice-president, Geo. W. Cale, Jr., M. D., Springfield, Mo.; secretary, Henry Enos Tuley, M. D., Louisville, Ky.; assistant secretary, S. C. Stanton, M. D., Chicago, Ill.; treasurer, Thos. Hunt Stucky, M. D., Louisville, Ky.

The following resolution was offered by Dr. S. P. Collings, of Hot Springs, Ark., at the Memphis meeting:

Whereas: The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures, therefore, be it

Resolved: That it is the sense of the Mississippi Valley Medical Association that measures be taken by boards of health, boards of education and school authorities, and where possible, legislation secured, looking to the examination of the eyes of all school children, that disease in its incipiency may be discovered and corrected.

Dr. Reed Brockway Bontecou.—On the evening of November 18, 1903, the Rensselaer County Medical Society honored Dr. Reed Brockway Bontecou, one of Troy's most highly esteemed and remarkable citizens. The occasion marked the 56th anniversary of the noted scientist's membership in the association. A banquet was served at the Troy Club and a beautiful loving cup was presented to the guest of the evening. Many noted medical men were present and responded to toasts, Dr. William Finder, Jr., president of the society, acting as toast-master. Dr. Hermon C. Gordinier gave a very interesting account of the life of Dr. Bontecou, of which the following is an abstract. Dr. Bontecou was born in Troy, N. Y., April 22, 1824, and is of Huguenot and Scotch descent. His early education was obtained at the Lancasterian School of Troy, the Troy Conference Academy, of Poultney, Vt., the Charles Anthony Academy and the Rensselaer Polytechnic Institute from which he graduated in 1842. This education inspired the doctor with a fondness for the natural sciences which was quite remarkable. Soon after graduating from the institute he began his study of medicine, receiving his degree from the Castleton Medical College in 1847, and since that time he has been very active in the practice of his profession. Probably the most noteworthy period of Dr. Bontecou's medical career was his military life, as surgeon in the army, where he served with great credit as regimental surgeon, as a medical director of hospitals and as medical superintendent of military hospitals. Dr. Bontecou was one of the first in this country to operate for appendicitis, and he did his first operation in 1869. He has been a member of the Rensselaer County Society for fifty-six years. He is an active member of the Medical Society of the State of New York, of the New York State Medical Association, of the American Medical Association and a member of other medical associations of national and international importance.

Book Reviews

Therapeutics of Infancy and Childhood. By A. Jacobi, M. D., LL. D. Third Edition. Philadelphia and London: J. B. Lippincott Company, 1903.

Dr. Jacobi's third edition comes with the prestige of the author, and of the previous issues of his well-known book. It is divided into fifteen chapters: (I) Feeding of Sick Children; (II) General Therapeutics; (III) Treatment of the Newly-Born; (IV) Diseases of the Blood and Constitution; (V) Infectious Diseases; (VI) Diseases of the Nervous System; (VII) Diseases of the Digestive Organs; (VIII) Diseases of the Genito-Urinary Organs; (IX) Diseases of the Respiratory Organs; (X) Diseases of the Organs of Circulation; (XI) Diseases of the Skin; (XII) Diseases of the Muscles; (XIII) Diseases of the Bones and Joints; (XIV) Diseases of the Ear; (XV) Diseases of the Eye.

The first and second chapters are particularly valuable as representing the broad-minded and conservative attitude of the author. Dr. Jacobi has the courage of his convictions and has some old-fashioned ideas about the value of tried and true remedies. which is quite a refreshing characteristic in these days of novelty and change. He does not believe that a child's interior is a reproduction of a glass test tube, and he maintains stoutly his faith in the value of clinical observations. For practitioners who have observed the rapidly-changing features of modern scientific infant feeding this cautious attitude of Dr. Jacobi has proved interesting, and it would now appear that he has been right in resisting the invasion of untried and experimental methods which have been so short-lived.

The index shows the comprehensive character of the work, and the chapters on local diseases, as well as upon general conditions, really constitute a volume upon the practice of medicine, with such modifications as are clinically observable in the diseases of early life. It is a very welcome and valuable treatise, and quite characteristic of the strong personality of its author.

Current Medical Literature

SURGERY

Edited by A. Vander Veer, M. D.

Tuberculosis of the Knee Joint. Conservative Treatment or Operation. (Kniegelenkstuberculose. Abwartende Behandlung oder Operation.)

KONIG. *Berliner klinische Wochenschrift, No. 10, March, 1903.*

The writer presents the clinical history of a typical case of tuberculosis of the knee joint, together with the pathological specimen obtained at operation, and on the basis of this case discusses at considerable length the arguments for and against the operative treatment of the condition. The conservative mode of treatment may result in a cure with more or less motion of the joint, but the length of time required to obtain such a result is very uncertain, and usually is at least two and one-half or three years. On the other hand a cure of the condition by operation results in a stiff knee joint, but a cure is effected in a comparatively short time. The conservative method of treatment is really only available for those individuals who can afford the time and the money. For members of the working class, as well as for those who must earn their own living, the operative method seems to be by far the more desirable. Furthermore, there is no absolute guarantee that a positive permanent cure will result, even after two or three years of conservative treatment, and even at the end of this time a resection of the joint may be necessary. Regarding the technique of the operation the writer strongly urges the use of the Esmarch, in order that all the diseased tissue may be removed. The joint is opened by cutting through the patella from side to side. All of the diseased capsular tissue is removed and the joint surface of the femur, as well the tibia, is sawed off. Great care is taken to remove all foci of disease. The patella is sutured and drainage is introduced. The first dressing is done from two or three weeks after the operation.

The healing of tuberculous foci in bones and joints is accomplished by the production of scar tissue and this, as is well known, develops extremely slowly where there is very much disease of the bone, so that it naturally follows that those cases in which the disease develops in the bones will recover under the conservative treatment very much more slowly and very much less certainly than will those in which the disease begins in the tissue about the joint. The operative method of treatment usually assures the use of the leg, with a stiff knee, in from four to five months after operation.

MEDICINE

Edited by Samuel B. Ward, M. D., and Hermon C. Gordinier, M. D.

Synchronous Occurrence of Influenza and Typhoid Fever. (Beitrag zur Kasuistik der gleickzeitigen Erkrankung an Influenza und Abdominaltyphus.)

STOLKIND. *Zeutralblatt für innere Medizin, 1903, No. 33.*

The writer considers at first the question of mixed infections, a subject which has not been sufficiently investigated. He quotes briefly from literature similar conditions.

Bacteriologists as Pasteur, Koch, Loeffler and others have determined with certainty that directly before the beginning of a disease, certain bacteria have been found at the time, either opposing or assisting the other microorganisms. The occurrence of vaccination during a syphilitic infection shows that both poisons act completely distinctly from each other. Vincent found, in a simultaneous infection with typhoid bacilli and streptococcus, the action of both bacteria. It has occurred, although seldom, that an infection in the course of an existing infection has acted favorably and even curatively. Clinicians before the days of bacteriology have had long disputes on the possibility of the simultaneous occurrence of two acute exanthematous diseases.

Kirschman in 1898 observed, in an epidemic, the simultaneous occurrence of measles and scarlet fever.

Text-books say little about mixed infections and even in Nothnagel's encyclopedia it is very briefly considered.

The following mixed infections have, however, been recorded in the literature: typhoid and malaria; chicken-pox and measles; measles, scarlet fever and vaccinia; diphtheria and measles; diptheria and scarlet fever; measles and typhoid fever. The occurrence of typhoid with dysentery, with Asiatic cholera, with chicken-pox, with erysipelas and with scarlet fever has been noted. The occurrence of typhoid and influenza has been rarely seen and the author adds his case to those recorded by Anders and Kübler. The history of his case is briefly as follows: In a dwelling where two persons were ill with typhoid and two with influenza, a woman who had never had typhoid or rheumatism became sick. The occurrence of coryza, cough, the early inflammation of the respiratory tract, angina, laryngo-tracheitis and lobular pneumonia, the profuse sweats during the entire illness and the irregular temperature curve seem to point to influenza; while the early splenic enlargement, the roseola, the diarrhœa, the tenderness and gurgling in the right ileo-cæcal region, the dicrotic pulse, the further course of the temperature with the marked typhoid habitus, indicated typhoid. The examination of the sputum showed the presence of Pfeiffer's influenza bacillus while the blood gave a positive Widal reaction in a dilution of 1-50.

OBSTETRICS AND GYNAECOLOGY

Edited by James P. Boyd, M. D.

A Case of Dissecting Metritis. (*Ueber einen Fall von Metritis dissecans.*) FRIEDRICH VON ZUR-MÜHLEN. *St. Petersburger medicinische Wochenschrift, Jahrgang* XXVIII, *No. 45, 1903.*

Some fifty cases of this condition have been reported. The author cites two or three cases from the literature, in which, during a puerperal infection, a gangrenous sequestrum of the uterine body has been thrown out. His own case was that of a primipara, thirty-four years of age, with contracted pelvis, necessitating perforation, cranioclasis and manual extraction of the placenta. During the puerperal period there were incomplete involution and a discharge of dark brown offensive fluid, which later became purulent. On account of the lightly remitting fever and the increase in the pulse rate, not in ratio with the degree of temperature, the existence of dissecting metritis was suspected, and this was confirmed by the discharge of a sequestrum of necrotic uterine tissue on the seventeenth day. The author refers to the characteristic symptoms of this disease as being the combination of dark brown offensive lochia, with diminished tendency to involution of the uterus occurring during a puerperal febrile state. The uterus may continue so large that the fundus remains higher at the end of the disease than at the beginning. The sequestrum is generally discharged at about the end of four weeks, but may appear earlier. In uncomplicated cases the fever declines at this time, and the patient recovers promptly. There is a possibility of perforation with peritonitis, but the local gangrenous process usually is circumscribed, and the prognosis is not entirely bad. The temperature may reach forty degrees, centigrade, or higher, with a slight decline in the morning, giving a remittent type of fever. The pulse is generally quite rapid, but not in proportion to the degree of fever. Occasionally a tumefaction of the inner wall of the uterus may be discovered from five to seven days after delivery. There is occasionally œdema of the peritoneum and the labia majora in the course of the second week. The etiology of the disease is of an infectious nature, due to operative interference. The treatment is expectant. The author warns especially against the use of intra-uterine douches on account of the danger of rupture. It is best to await quietly a discharge of the necrotic mass, and to content one's self with aseptic vaginal irrigation.

DERMATOLOGY

Edited by Frederic C. Curtis, M. D.

Dermatitis Venenata.

A large number of agents, topical in action, cause dermatitis in certain individuals, an increasing number with innumerable products of the synthetical chemist. Many are widely recognized, others are infrequent, new ones are being recognized. Dr. James C. White has published a work on the subject, and recently he has in a paper before the American Dermatological Association and printed in the *Journal of Cutaneous Diseases* given a supplemental list from his own observation and the reports of others. Certain of these are of general interest.

New hair dyes are enumerated, two in particular, a crystalline substance, soluble in water, and the basis of several commercial pigments, chlorhydrate diparaphenyline-diamine, is sold under various names as a hair dye with an accompanying bottle of "oxygenated water." Used one after the other upon the hair, it produces a violet black. Dermatitis that may follow, though often only after repeated applications, is of varying grade lasting for a few days to weeks and sometimes extending widely from the seat of application.

A so-called "aureole" is also sold in combination with a bottle of peroxide of hydrogen; the contents of both bottles being mixed and applied after washing the hair with soap or soda, a dark brown color intensified by repeated applications resulting. In case of dermatitis, itching and burning commence soon, followed by vesicles and pustules. It may extend over the general surface, lasting for weeks.

Of common drugs the author mentions orthoform as capable in some persons of producing serious dermatitis of an erythematous type suggesting erysipelas, occasionally with constitutional disturbance, but it is less mischievous than iodoform, which should be used with circumspection; salol similarly, as an efflorescence varying in intensity; resorcin not infrequently, and its use should be cautious at first; aristol, ichthyol and europhen come in the same category; pyoktanin recommended by Hyde for erythematous lupus found to excite dermatitis; creolin has been frequently observed to influence the skin, from the phenic acid and its derivatives, even setting up eczema and sometimes accompanied with general disturbance, applied in one and one-half per cent. solution. Kerosene comes in the same category, often used domestically as an embrocation and producing a fine papular dermatitis.

Brief mention may be made of less generally recognized irritants of the skin among vegetable substances: cocus wood, or green ebony, used by flute makers, with which is noted by the author a "redwood" of coarse mahogany used by furniture makers, possibly of the same family, produces dermatitis of the hands; guaiacum, or lignum vitæ applied in tincture excites inflammation; hops, often used as a fomentation excites an erythematous or pustular inflammation; heradium gigantium, cultivated in gardens; humea elegans, a handsome hot house bush; hyacinth bulbs by handling, as thought from minute needle-shaped crystals of oxalate of lime adhering to them; coboneaster microphyllia, belonging to the Rosaceæ, with pubescent leaves in which may lie the poisonous principle; the ginkgo tree, its fruit, one of the Coniferae, a native of North China and grown in gardens; trumpet vine, extensively cultivated about houses in New England; ampelopsis or Virginia creeper possibly (there are numerous varieties of ampelopsis many of which are undoubtedly innocent. Some have received a bad name from misinterpretation).

In the discussion which followed this paper, Dr. P. A. Morrow testified to observing dermatitis following the hair dyes noted, and mentioned another, a French preparation known as "La Royale." He had observed that blacks are more susceptible to poison ivy and Dr. White said he had never seen it in the negro. Dr. Stewagon had seen several cases of poisoning by metol, an ingredient of the hair dye, and "Auriole," which is used by photographers to develop negatives, Drs. Bulkeley and Shepherd mentioned recurrent poisoning by ivy on putting on clothing months after, in the winter, that had been worn at the time of a first attack, but this was doubted by others present.

At the same meeting Dr. S. Pollitzer read a paper on a new remedy for rheumatism, *Mesotan,* and its irritative effect upon the skin. This is a clear, pale-green, oily liquid, used externally only, diluted with an equal volume of olive oil, described chemically as a methyloxy-methyl-ester of salicylic acid. The affected part is brushed lightly with the diluted Mesotan and covered with gauze. It is promptly followed by warmth and tingling and the skin becomes reddened. Within half an hour salicylic acid may be detected in the urine, which is continued for twelve hours. Localized erythema with vesiculation follows, and a general urticaria may. He described two cases of intense diffused erythema, with weeping vesicles, appearing upon the body in varying intensity. Considerable relief followed the application of ichthyol, one to three.

He mentioned the record of an eruption following the injection of one or two doses of a drug similar to Mesotan, *aspirin,* acetyl-salicylic acid, an erythematous induration, affecting the head and extremities severely in patches and accompanied by intense pruritus.

NEUROLOGY

Edited by Henry Hun, M. D.

A Case of Generalized Neuro-Fibromatosis (von Recklinghausen's Disease).

George Heaton. *The Lancet, December 27, 1902.*

The author states that the disease is very uncommon and is generally looked upon as a vice of development, although, in certain cases, it is believed to be caused by traumatism. The leading characteristics of the disease are, the long history, slow progress and trifling functional disturbance which results from such wide spread and extensive changes as are met with in the peripheral nerves.

Case. A man, aged thirty-eight, was admitted to the Birmingham General Hospital, June 2, 1902, complaining of neuralgic pains of and swelling in the right side of the face, and difficult swallowing.

At three years of age, he fell and cut his right cheek. Two years later, a lump appeared which gradually enlarged and was removed six years after. The swelling continued to increase, however, and, in 1887, he was admitted to Guy's Hospital, where the mass and a portion of the hypertrophied cheek were removed. A certain amount of the swelling remained but he was not troubled with pain or discomfort for fourteen years.

Twelve months ago the swelling in the right cheek increased and the neuralgic pain became constant and very severe. Recently, the swelling would, at intervals, suddenly increase and the cheek would become tense and break out into superficial sores. Each such attack was followed by a permanent increase of the swelling.

On admission his condition was as follows: Soft parts of the right side of the face were thickened, apparently, by chronic hypertrophy or lymphatic œdema. The left side of the face was shrunken. There was right facial paralysis. The lower jaw was pushed downward and to the left by a firm, elastic, globular tumor, about the size of a billiard ball, situated on the inner side of the ascending ramus of the jaw and occupying the right side of the mouth, fauces and pharynx. Scattered over the chest, abdomen, back, thighs and arms were many swellings which varied in size. These tumors were, for the most part, painless and did not appear to interfere with the functions of the nerves upon which they occurred. The skin, generally, was pigmented.

The tumor in the mouth was removed to relieve the difficulty in swallowing but the patient died a few hours after the operation from shock and exhaustion.

Necropsy. The tumors were hard, greyish white in color and definitely encapsulated. They could readily be separated from the nerve bundles which ran in the capsule. To every tumor not actually in the skin, a nerve could be traced. The peripheral nerves were invariably affected but varying in degree. Each nerve showed, at irregular intervals, fusiform swellings. Between these definite tumors, the nerve was swollen and tortuous. The swollen nerves had a semi-transluscent, gelatinous appearance. The sympathetic system presented similar appearances. The brain and cranial nerves were normal. Microscopically, the tumors consisted of fibro myxomatous tissue.

PSYCHIATRY

Edited by G. Alder Blumer, M. D.

Notes Upon a Case Where Symptoms of Early General Paralysis of the Insane Followed a Head Injury; Trephining; Removal of Depressed Bone; Disappearance of the Symptoms.

A. Marmaduke Shield and T. Claye Shaw. *The Lancet, February 14, 1903.*

On December 16th, 1902, a man aged thirty years presented himself to Dr. Shield. About three months previously he had been thrown out of a dogcart and had sustained a scalp wound in the left frontal region. He was also somewhat "concussed," but his symptoms were not considered bad enough to confine him to his bed except for a short time. The bone was carefully examined and thought to be uninjured. In about a month the patient commenced to suffer from pains in the head, loss of memory and a vague feeling of "not knowing what he was about." He developed sudden and violent outbursts of passion and was unfit to carry on the ordinary duties of life. He improved somewhat but his symptoms afterwards developed and he presented the following condition:

The patient wore a confused and demented facial expression and had a considerable amount of both facial and general tremor. He complained of a pressure-feeling over the scalp and declared his inability to perform any sustained mental work. There was no disease of the fundusoculi, but the pupils were slightly nonsymmetrical, the left being the smaller; they reacted to light and accommodation. He could not stand firmly when his feet were placed together, nor could he walk along a line when told to plant one foot directly in advance of the other. The knee-jerks were present but weak. There was some tremor of speech, but the tongue was fairly steady and there was no prominent complimentary spasm of the muscles around the orbit. When asked to read the paper he misplaced and mispronounced words and altered the spacing. The handwriting was to be deciphered with difficulty owing to the crowding of the letters and shakiness of the upstrokes. The prominent mental condition was one of dementia, and apathy and slowness of comprehension in answering ordinary questions. There was an unwarranted sense of bien-être, but no illusions could be elicited. The friends said that he had become subject to impulsive outbursts and was considerably changed in general disposition. He suffered from insomnia and spoke of loss of sexual appetite. On December 19th an operation was done and a faint crack was found in the frontal bone. The bone was very thick and hard, and upon its removal a fracture on the inner table of the skull was revealed, and two small pieces of bone were depressed deeply upon the dura mater, which was uninjured. There was a profuse hæmorrhage from a large anterior branch of the meningeal artery. This was allowed to bleed, a drainage tube being introduced beneath the flap. A most marked change occurred in the patient's mental condition. In a fortnight he was up and about and was about to attend to business as well as ever.

Fits of an epileptiform nature, severe pains in the head, and mental disturbances are all found in these curious and interesting cases. In some cases more thickening of the bone is found and in others a depressed fracture previously quite unsuspected. In others, again, the membranes have been found thickened, and cystic formations, the remains of old blood extravasations, have been detected. The bone should be freely removed, but unless there be a very definite reason it is better not to incise the dura mater in these cases. Should any suspicion of cerebral abscess be present in the mind of the operator the brain beneath should always be explored in the usual manner.

Concerning Mental Disturbances Following Injuries to the Skull. (*Ueber psychische Störungen nach Schädelverletzungen.*)

VIEDENZ. *Archiv für Psychiatrie und Nervenkrankheiten, XXXVI. 3.*

This question has had considerable attention without any very definite result. It is especially difficult to determine how far the injury is responsible for the mental disorder, and how far other injuries to the brain may be taken into account, as hereditary taint, lues, alcohol and so forth. The writer reviews the facts in their relation to idiocy and imbecility following head injuries during parturition, and shows considerable discrepancy in the results reached by different investigators. Some authors, notably Skae, of Edinburgh, have described a special symptomatology for traumatic insanity. Krafft-Ebing has summarized the subject upon a chronological basis, and divides the cases into the following three classes: (1) Cases in which the psychosis follows immediately upon the injury;

(2) Cases in which a longer or shorter period of cerebral irritation existed between the trauma and the outbreak of the mental symptoms, and

(3) Cases in which the injury has resulted in a diminished amount of mental resistance, and in which some other exciting cause induced the mental disturbance.

The information derived from the material in hand, the literature and the author's cases, leads to the following conclusions:

(1) Injuries to the skull in childhood cause relatively often idiocy or imbecility, which may be complicated by spasms. When intelligence is preserved moral defects are apt to be developed.

(2) An injury to the skull is fully capable of inducing in an adult with intact mind a mental disturbance; much more frequently, however, the influence is upon a weakened brain, where the injury is an exciting cause, or in a sound mind the injury acts as a predisposing moment for the development of a psychosis.

(3) The mental disorder may be developed immediately after the injury is sustained, or may be postponed for a longer or shorter interval. During the intervening time there are generally certain prodromal symptoms.

(4) A form of traumatic insanity, as a typical, well-characterized symptom-complex, does not exist, though all psychoses due to injuries to the brain present certain common symptoms, among which may be mentioned marked change in character, irritability, failure of memory, intolerance of alcohol.

(5) The following mental states are most frequently found after injury to the skull: primary dementia, hallucinatory confusion and stuporous states, at times with katatonic symptoms, infrequently paranoia. As to whether epilepsy or paresis may be assigned to this cause, appears doubtful, although clinical types resembling these diseases are frequently observed.

(6) There is not a very great difference between mental states following injuries to the head, and those due to alcoholic excesses.

(7) The existence of a mental disorder after an injury to the head indicates greater or less anatomical changes in the brain, mostly due to fine histological injuries, which appear to be related to disturbance in the capillaries. Up to the present time there have been found no constant recognizable changes in the ganglion cells.

(8) The prognosis depends upon the form of the disease, and is the same as for similar states existing independently of traumatic origin.

Late Affections of the Brain after Injuries to the Skull. (Uber Späterkrankungen des Gehirns nach Schädeltraumen.)

STADELMANN. *Zentralblatt für innere Medicin, 1903, No. 1.*

It has been for a long time known that a fall or blow upon the head can produce an injury to the brain. Cases are not unknown in which hæmorrhage occurs some time after the injury. This may be due to a splinter of bone which is broken off by the injury and secondarily penetrates a vessel. Recognition has recently been given to the fact that apoplexis, when an apparently healthy condition continues for weeks after an injury, may be brought in casual relationship with such injuries.

Matthes and Bruns have collected the histories of a large number of such cases, many of which, however, will not stand a searching scrutiny.

The writer postulates the following conditions for the assumption of the relationship of brain injuries to trauma. The patient must have been perfectly healthy before the accident, alcoholism and lues being especially excluded; the injury must have been considerable, and the development of the disease must have occurred under the attention of the observer. Histories of two cases of apoplexy are given in which there were healthy intervals of four and seven weeks respectively after the injury. The discussion brought out the fact that cases of post-traumatic dementia were more common, especially when the injury affected older people with arterio-sclerosis. Hypochondriacal ideas were especially common.

Concerning a Peculiar Katatonia-like Condition Relieved by Operation. (Ueber ein eigenartiges, operativ beseitiges, katatonisches Zustandsbild.)

K. Bonhoeffer. *Centralblatt für Nervenheilkunde und Psychiatrie, No. 156, January 15, 1903.*

The author reports a case of mental disease with symptoms of katatonia, and an injury to the skull, an operation for which was followed by a favorable result. He states that the characteristic symptoms of katatonia, negativism, passivity, catalepsy, verbigeration, rhythmical movements and stereotypy, present in a variety of diseases. Verbigeration, which is particularly characteristic of katatonia, he has seen in classic form in a case of epilepsy. His patient sustained an injury to the head in 1870, which was indicated by a very marked depression in the left parietal bone. There followed a change in character shortly after the injury and in 1897 the patient manifested marked mental symptoms, irritability and attacks of headache, with flashes of light, and sensation of oppression at night, and this was accompanied by weakness of the limbs on the right side. There were further states of automatism, self-mutilation and spasms alterating with cataleptiform attacks. The symptoms were also paroxysmal. An operation on the head was done by removing the flap of the bone, and there was found no visible local lesion. After the operation there were motor aphasia, spasms and paralysis of the right hand. Twenty days after the operation the patient began to recall himself and to appreciate his situation. Five months after the operation there was an epileptic attack. This was repeated three months later. It appeared to be a typical epileptic seizure. The patient improved so that he was able to employ himself, and in August, 1902, was dismissed from the hospital, and has not since relapsed. Several reasons may be given for the improvement following the operation, as, for instance the theory of Kocher, that local congestion and pressure by the pia are relieved. Bier has also explained the epileptic attacks, after such an operation, by the sudden release of the pressure.

It was interesting to note that in this case, which primarily presented the symptoms of hystero-epilepsy, certain mental changes occurred which resembled the late stages of katatonia.

Multiple Traumatism and General Paralysis. (Traumatismes multiples et paralysie générale.)

A. Marie and Viollet. *Le Progrès Médical, 14 November, 1903.*

The remarkable case reported by the authors is one of hereditary syphilis, in which fragility of the bones was shown by numerous fractures. The first fracture was of the right thigh and occurred when the child was twelve days of age; the second was also of the right thigh, at eighteen months; at five years this thigh was fractured again by a simple fall; and this was repeated at eleven years, and again at fifteen; in the same year the clavicle was broken by a fall from a chair; at eighteen years the right thigh was again broken by a fall from cellar stairs. When thirty-one, the patient was pushed against a carriage, and sustained a fracture of the left leg. Although this was treated by prolonged immobilization in plaster of Paris, union was imperfect and surgical intervention was eventually required, resulting in deformity. At thirty-three he sustained the ninth fracture, due to compression of his chest by the wheels of a carriage under which he was thrown in a collision. This was followed by hæmoptysis, hæmatemesis, pleurisy and deformity of the thorax. He died at thirty-eight of general paralysis, the diagnosis confirmed at autopsy. There were atrophy of the frontal lobes with infiltration and adhesion of the pia, and nuclear and leucocytic infiltration of the cortical ganglionic cells. In addition to other accidents, the patient was submitted to an operation for strangulated hernia when thirty years of age. The symptoms of general paralysis began at thirty-six, when there were failure of memory, neglect of work, loss of property, embarrassed speech, slight deafness, unsteadiness of the limbs, fibrillar tremor of the tongue, unequal pupils and progressive general enfeeblement.

The authors regard the numerous injuries to the bones as the result of hereditary lues, which also gives a predisposing cause for the meningo-encephalitis.

OPHTHALMOLOGY

Edited by Charles M. Culver, M. D.

Complete Microscopical Examination of a Case of Sympathetic Ophthamia. (Vollstaendige mikroskopische Untersuchung eines Falles von sympathischer Ophthalmie.)

Asayama (Kioto, Japan). *Graefe's Archiv fuer Ophthalmologie, Band 54, Heft 3.*

The case here reported is the third in which all the parts concerned, in a case of this disease, have been procured, *post mortem,* and the possibility thus realized of judging of the correctness of Deutschmann's theory that the malady passes from the affected eye, along its optic nerve, across the chiasm and to the fellow eye by way of its optic nerve.

The case reported by Deutschmann himself is the first of the three, above mentioned, in which the conditions permitted a trustworthy examination. Deutschmann had experimented on rabbits with a view of determining the way in which a lesion of one eye produced the morbid sympathy of its fellow. In the case just mentioned, Deutschmann's own, changes were found along the course of both nerves, chiefly in the pial sheaths and septa, as well as in the entire uveal tract in each eye; since these findings accorded with those resulting from his experiments with rabbits, they seemed to justify the hope that the question was thus settled. Other investigators, however, later failed to find confirmation of the correctness of Deutschmann's conclusions from his experiments on rabbits; such experiments, however, of themselves, are hardly conclusive, since rabbits have not been known to suffer from sympathetic ophthalmia as the result of injury. Nor have Deutschmann's conclusions been supported clinically. Gruenert reported the second case, in which thorough microscopical examination was possible; in it, the entire uveal tract of the exciting eye was inflamed, but in the sympathizing eye there was only iridocyclitis, the chorioid not being affected. Inflammation extended somewhat back from the discs, in each nerve, but not all the way, and there was less in the sympathizing than in the exciting eye. The chiasm was affected, but the intracranial parts of the nerves were not. The description of Asayama's case differs still more from Deutschmann's. The nerve of the sympathizing eye was affected only in the neighborhood of the disc, while the chiasm did not appear abnormal. In the sympathizing eye the entire uveal tract was notably inflamed and its chorioid greatly thickened; a copious new formation of spindle-celled connective tissue completely obliterated the supro-chorioideal space in the posterior part of the eye-ball.

The patient was a laborer. twenty-seven years of age when he died. About twelve years earlier his right eye had become blind, as the result of a wound from a stone. Two years before his death that eye had a serpiginous ulcer of the cornea; this soon yielded to treatment, but again became painful, four months later, when the left eye was found to be affected by what was diagnosticated as "keratitis punctata." The right eye was removed, but the left eye became blind. A year and a half after the removal of the right eye, the patient was admitted to the hospital and died, the autopsy revealing pulmonary tuberculosis, with pyopneumothorax and parenchymatous nephritis. It naturally occurs to a reader of the report to inquire if it be not one of tubercular disease of the left eye and if it be a case of sympathetic ophthalmia at all. Asayama forestalls this inquiry by stating that the eye showed no indication of tuberculous affection. No giant or epithelioid cells, no caseation or bacilli were present. Peters' theory, that sympathetic disease is often only tubercular, is not supported by the report in question. In Deutschmann's case, the bacteriological examination was positive, in Gruenert's it was negative; except as regards tubercle, the case now reported warrants no positive conclusion, inasmuch as the organisms might well have disappeared in the year and a half between the removal of the exciting eye and the patient's death.

LARYNGOLOGY, RHINOLOGY AND OTOLOGY

Edited by Clement F. Theisen, M. D.

A Contribution to the Localization of the So-called Bleeding Polypi of the Nose. (Ein Beitrag zur Locallization des sogenannten blutenden Polypen des Nase.)

Baurowics. *Archiv für Laryngologie und Rhinologie, Bd. XIII, Heft III, 1903.*

Since Lange and Schadervaldt first called attention to the occurrence of polypi having their seat on the lower, anterior portion of the septum, and which had the peculiar property of spontaneous bleeding, the subject has received considerable attention. The fact that such cases were observed mainly in women, led to the belief that there was a certain relation between them and the period of the sexual life of the woman. But although the majority of these cases have been observed in women, a few isolated cases have been reported occurring in men. Eight cases have been described by the author, one of which occurred in a man. It could be determined also that although these polypi had their seat only on the septum they might occur in different parts of the septum, but mainly the cartilaginous portion. Their histological structure varies. At times they appear more like true granulonata or sarcomata, at other times like soft fibromata, but their blood supply is always extremely rich, the vessels being sometimes much dilated. The etiology is not very clear, it is thought that some mechanical irritation is the cause, and the view held by Siebermann and Ribary, that the so-called dry catarrh of the septum (rhinitis sicca anterior), plays an important part, seems to be applicable to some cases. This was true in two of the writer's cases, and he observed the formation of crusts in the region of the polypi. He gives the details of one case which was unusual in that the polypi, instead of having its usual seat, was situated on the anterior end of the inferior turbinate.

The patient, a young woman, aged nineteen years, was in the eighth month of her pregnancy, and for several months had been troubled with sudden and very severe attacks of nasal hemorrhage, which were hard to control. She had never previously had any attacks of this sort. Her growth was removed with the hot loop and the base thoroughly cauterized. The connection between a pregnant condition and the occurrence of such polypi is probably accidental, although it is quite possible that pregnancy has a certain influence on the growth. In one of the author's cases the patient stated that she had nasal obstruction on one side for five years, with severe hemorrhages from the same side. This condition had been particularly present during her last three pregnancies, and she noticed that after every hemorrhage the nose was much clearer. Between her pregnancies too, the breathing was much freer and the bleeding less. The growth may occur however in women of any age and in single as well as married women.

ORTHOPAEDIC SURGERY

Edited by Arthur W. Elting, M. D.

Sciatica, Meralgia and Flat-Foot. (Ischialgie, Meralgie und Plattfuss.)

J. Pal. *Wiener klinische Rundschau, No. 1, January 5, 1902.*

The conditions attending congenital flat-foot do not exhaust the symptoms which accompany pes valgus in adults acquired after the development of the skeleton is completed. In the latter cases the affection is more apt to be a yielding and twisting of the ligaments than a true skeletal deformity, and the prominent symptoms are often remote from the underlying cause and lead the patient to a neurologist who not infrequently overlooks the deformity. The sensory disturbance in the distribution of the external cutaneous (femoral) nerve, which has been described by Roth as "meralgia paræsthetica," has been manifested in connection with flat-foot, as has another peculiar pain, resembling sciatica, in the region of the hip-joint. Pal has relieved these neuralgic conditions by treatment of the flat-foot. He has noticed that the pains accompanying flat-foot spread from the sciatic region across the sacrum and that they are entirely subjective and unattended by tenderness. The patients have usually acquired a rapid increase in weight and have been upon the feet a great deal. Generally with nervous predisposition nervous symptoms are apt to be intensified. The treatment is first rest of the feet. Then the shoemaker must have definite instruction for the manufacture of the shoes. A support must be given to the foot which will place it in a position of supination, and this is attained by a transversely wedge-shaped sole reaching from the heel to the toes. Cork is the best material for this purpose.

The author concludes with the recommendation that in all cases of difficult locomotion with pains in the limbs, and particularly when the pains radiate from the feet, the latter should be carefully examined.

PÆDIATRICS

Edited by Henry L. K. Shaw, M. D.

The Relation of Status Lymphaticus to Sudden Death, Death under Anaesthesia and Infection.

Blumer. *Johns Hopkins Hospital Bulletin, October, 1903.*

The author adds a most valuable contribution to the study of sudden death in children associated with hyperplasia of the thymus gland and lymphatic apparatus. These cases are of interest both from a professional and medico-legal point of view. Nine cases were carefully studied with special reference to the bacteriology and histology of the condition, a feature not touched upon in most of the articles on this subject.

A brief review of the literature on the subject is presented with the various hypotheses as to the cause of the sudden death. Spontaneous sudden death associated with the status lymphaticus has been found in several classes of cases.

Cases found dead in bed. The author had several of these cases. In the history of some of these it was evident the infants did not feel well as they refused food sometimes as long as an hour before they were found dead. A death in convulsions occurred in one of the author's cases.

Cases of sudden death, presumably of cardiac origin. Cases where sudden immersion in cold water was followed by death belong to this class. Probably some of the cases found dead in bed belong to this class.

Cases of sudden death, presumably of respiratory origin. These can be classed under the general heading of thymic asthma. There is no relation between this condition and laryngismus stridulus.

Cases of sudden death, presumably of nervous origin. The association of the status lymphaticus and epilepsy has been noted and several instances have been reported where sudden death occurred during an epileptic seizure. The relation of the status lymphaticus to death during anæsthesia is discussed. Death is here due to cardiac failure and chloroform was formerly considered especially dangerous. It has been shown in recent years that ether and the A. C. E. mixture are perhaps equally dangerous.

. In discussing the relation of the status lymphaticus to infection, the author gives clinical histories of two of his cases in which there was a distinct modification of the ordinary clinical symptoms in tetanus and a streptococcus infection.

The gross pathological lesions of the status lymphaticus consist of hyperplasia of the thymus gland and of the lymphoid tissue of the body in general.

Histological lesions were identical in the nine cases examined, differing only in degree. In the thymus gland there was a hyperplasia of the lymphoid elements. In the lymph nodes, Malphigian corpuscles of the spleen, the tonsils and the lymphatic apparatus of the intestine, there was a general hyperplasia associated with focal changes. The lesions closely resembled those seen in various infections.

The bacteriological examinations in these cases were negative and the writer believes that some factor other than bacterial infection produces the lesions in most of most cases of status lymphaticus.

As a result of his investigations, the author would advance the hypothesis that the condition which is present in the status lymphaticus is one of lymphotoxæmia.

A summary of the paper is contained in the following conclusions:

1. The condition known as status lymphaticus is a definite pathological entity.

2. It is probably associated with, if not due to, a condition of intermittent lymphotoxæmia.

3. It may be associated with sudden death, probably as a result of lymphotoxæmia alone in some cases, or as a result of the action of toxic, physical, or psychic injuries, which are rendered much more powerful than usual by the predisposing action of the lymphotoxæmia.

4. In some cases the death is undoubtedly mechanical and due to asphyxia from pressure of the enlarged thymus on the trachea.

5. The subjects of the status lymphaticus can be recognized clinically in some instances.

PATHOLOGY AND BACTERIOLOGY

Edited by Richard Mills Pearce, M. D.,

Assisted by E. MacD. Stanton, M. D. and Charles K. Winne, Jr., M. D.

Observations on the Distribution and Culture of the Chancroid Bacillus. Lincoln Davis. *Journal of Medical Research, 1903, IX, 401.*

The author records a very complete study of the chancroid bacillus.

first described by Ducrey in 1889. The pus of forty cases of genital ulcerations clinically resembling chancroid was examined; in thirty-two bacilli corresponding in morphological and tinctorial characteristics to the Ducrey bacillus were found. The bacillus was the prevailing organism in the simple ulcers as well as in the phagedenic destructive ones. Arrangement of the bacilli in chains was noted only in the rapidly progressing ulcers; the location of the bacilli in cells was particularly noticeable in healing ulcers. In sections of six chancroids, the bacilli were found but once. Pure cultures were obtained from the pus of two primary genital chancroids; while mixed cultures were frequently observed. Pure cultures were also obtained from three chancroidal buboes, and from a chancroidal ulceration of the abdominal wall resulting from accidental auto-inoculation from a genital lesion. Of great interest was the discovery of the organism in two cases of primary extra-genital chancroid of the fingers; from both pure cultures were obtained. The media used were (1) two parts two per cent. agar plus one part rabbit's blood; (2) uncoagulated rabbit's blood serum and (3) one part rabbit's blood plus two parts bouillon. All gave equally satisfactory results. Cultures were also obtained in several instances by employing small tubes of freshly drawn human blood. Smears of the organism growing in fluid media shows long chains, extending through several fields of the microscope, often parallel but usually tortuous and tangled. On solid media after twenty-four hours, small round greyish colonies appear. These consist of the same organism arranged in shorter chains and singly. The organism decolorizes by Gram's method and by mineral acids. Carbol-fuschin followed by alcohol brings out a bipolar staining. No spore formation was observed and the organism is non-motile. Cultures usually die out in three to four days, but transplantation may be carried to the eleventh generation with but slight diminution of luxuriance of growth. Involution forms are common. On ordinary media no growth occurs. An attempt to inoculate a guinea pig failed; but a distinct ulcerative lesion was produced in the monkey (Macaccus Nemestrinus) and the organism was found in the pus and recovered in culture.

CLINICAL MICROSCOPY

Edited by Arthur T. Laird, M. D.

Ring Bodies (Nuclear Remnants?) in Anemic Blood.

RICHARD C. CABOT. *Journal of Medical Research, Vol. IX, No. 1. February, 1903.*

In studying specimens stained with Wright's modification of Leishmann's stain various anomalies in the staining reactions of the red cells are noted. In addition to the well known diffuse bluish or purplish tint taken by red corpuscles which have lost their affinity for acid stains, one finds a spotting or stippling of the cells with dark blue dots. But beside this the author finds that Wright's stain brings out a new set of anomalous staining reactions hitherto undescribed. The basophilic granulations, especially those found in pernicious anemia and lead poisoning, are ordinarily discrete and not arranged in any special figures. The author has found granulations distinctly arranged in a circle. Though an occasional blue ring is seen these rings are more often stained red. In some cells the rings are very small, in others they are almost at the periphery of the cell. A second class of rings are relatively small and occur in stippled cells. Another group of rings form various figure-of-eight shaped bodies.

The author is satisfied that these ring bodies are not parasites of any kind on account of their occurrence in diseases as diverse as lead poisoning, pernicious anemia and leukemia. That they have some connection with anemia is indicated by the fact that in every case in which they have been found a marked anemia was present. They do not represent merely accidental configurations of the ordinary granular stippling, for they are sometimes continuous and occur in cells quite free from stippling. The author does not consider them a mark of cell degeneration for they are most closely associated with three manifestations of cell regeneration, viz., nucleated red cells, polychromatophilia, and ordinary granular stippling. The author's hypothesis is that they represent nuclear remains as their shapes correspond well with those of nuclear figures and in every blood in which they have been found nucleated red cells have been abundant.

MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

SELECTED FORMULÆ

Smallpox

To abort the papules, diminish pruritus and prevent pitting:

℞ Hydrarg. chlor. corrosivi
Extractum opii aa.......... 1 gm.
Alcoholis .... 5 gm.
Glycerini ....60 gm.
M. S. For external use. —*Lebesgue.*

Or

℞ Icthol ....15 gm.
Olei amygdalæ dulcis.......65 gm.
Lanolini ....20 gm.
M. S. Apply.

Chickenpox

To cure the pruritus:

℞ Acidi borici ....ʒj
Vaselini ....℥j
M. S. Apply. —*Ringer.*

Menorrhagia

Atropine sulphate, 1-100 gr. hypodermatically, every 4 to 8 hours, until flowing stops.

Sciatica

Spiritus glonoini .... flʒss
Tinct capsici ....flʒss
Aquæ menthæ piperitæ..........flʒiij
M. S. Five drops thrice daily in a tablespoonful of water for the first three days, and ten drops thrice daily on the following days.
—*Troussevitch.*

Scarlatina

Spray for throat:

℞ Hydrogen peroxide .... flʒj
Aquæ bullientis ....flʒjv

For the nares:

℞ Hydrogen peroxide ....c.... flʒiij
Aquæ bullientis ....fl℥jss
Sodii bicarbonatis .... ʒss
M. S. Heat before using.
—*J. L. Smith.*

Vol. xxv FEBRUARY, 1904 No. 2

ALBANY MEDICAL ANNALS

Original Communications

ST. PETER'S HOSPITAL.

Read before the Medical Society of the County of Albany, December 9, 1903.

By CHARLES E. DAVIS, M. D.,

Surgeon to St. Peter's Hospital, Child's Hospital, and South End Dispensary.

It has been well said by Sir J. Ranold Martin, C. P., F. R. S., that the objects and uses of hospitals are, "the recovery of health, recovery from sickness in the shortest time, and with the smallest mortality, and at the lowest cost consistent with efficiency.

"Hospitals are in some sort the measure of the civilization of a people; they are better constructed, in proportion as communities are united, more humane and more instructed. As asylums for the sick and hurt, they are the most splendid expression of wisdom and benevolence; particularly in the immediate assistance they afford to external injuries.

"To Christianity, solely, do we owe the institution of hospitals for the reception and cure of the sick; the very scattered and uncertain notices to be found in histories of the Greeks, and Romans, as of Asiatic nations, exhibiting only doubts and uncertainties. It was Christianity alone which really and practically revealed the truth that all mankind is one, and that human nature is the same in all."

It is curious in the history of the progress of civilization to observe how gradually and imperceptibly philanthropy,—from being a mere speculative principle—a mere sentiment or abstraction—came to be a vast power. The interest of society at length forced it into general acceptance, but so great a change required many centuries for its maturity. "A benevolent principle is implanted in our natures, which independently of the sense of duty or of the approval of reason, induces us, by an involuntary motion, to relieve the distress of our fellow creatures. Under the influence of a benign religion, operating upon those impulses of our nature, we perceive our country covered throughout with the most noble institutions for the sick and distressed. Their establishment reacts favorably upon the public mind. Hospitals improve the disposition of mankind, by cultivating charity; a degree of dependence upon public opinion and munificence is, therefore, useful."

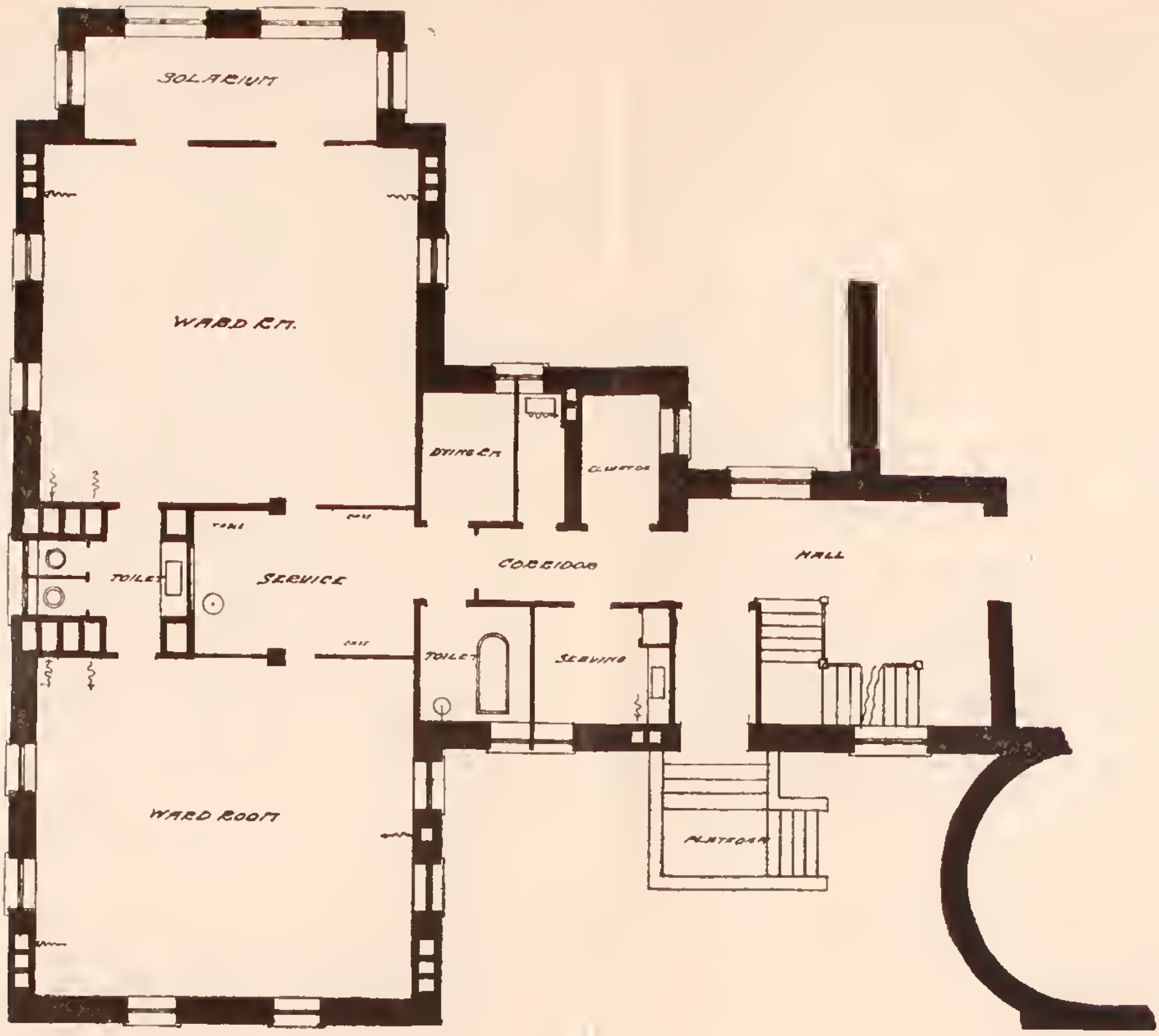
The institution of which I speak is, and always has been very dependent upon public opinion and charity. We believe St. Peter's Hospital has always been a source of inspiration and satisfaction to those charity-loving people who were interested in its works. That it may continue to fill the place it has so long occupied, and make possible a new and greater field of usefulness, is the reason for my presentation of this paper to you.

St. Peter's Hospital was founded in November, 1869, by the Sisters of Mercy, for the treatment and care of medical and surgical cases among the poor. The Sisters, who have labored to make the health and happiness of thousands who have come under their care, are certainly deserving of the highest commendation and admiration. Laboring, as they do, in many parts of the world, for the relief of the suffering and afflicted; shut off, as they are, from the worldly enjoyments of home and the pleasure for which so many people strive; many times denying themselves material comforts, that the work in which they are engaged may go on; working day and night, without hope of earthly reward or compensation, their lives are certainly an inspiration, and prove that Christianity has made progress, and that they exemplify the highest type of useful unselfishness to be seen in the world.

Since the very beginning, this institution has been free from selfish motives, and has striven to serve the purpose for which it was intended, in the most intelligent and careful manner. The hospital has always been a charity, supported by the generosity and personal contributions of a most liberal public. It was incorporated in 1872, and Mother M. Paula Harris was the first Superior in charge. For many years this good Mother strove to fulfill her mission. Under the greatest financial difficulties, the Mother was able to maintain the high standard of efficiency the hospital then enjoyed, and to her, more than to anyone else, is due the splendid

To Illustrate Dr. Charles E. Davis' Article on "St. Peter's Hospital."

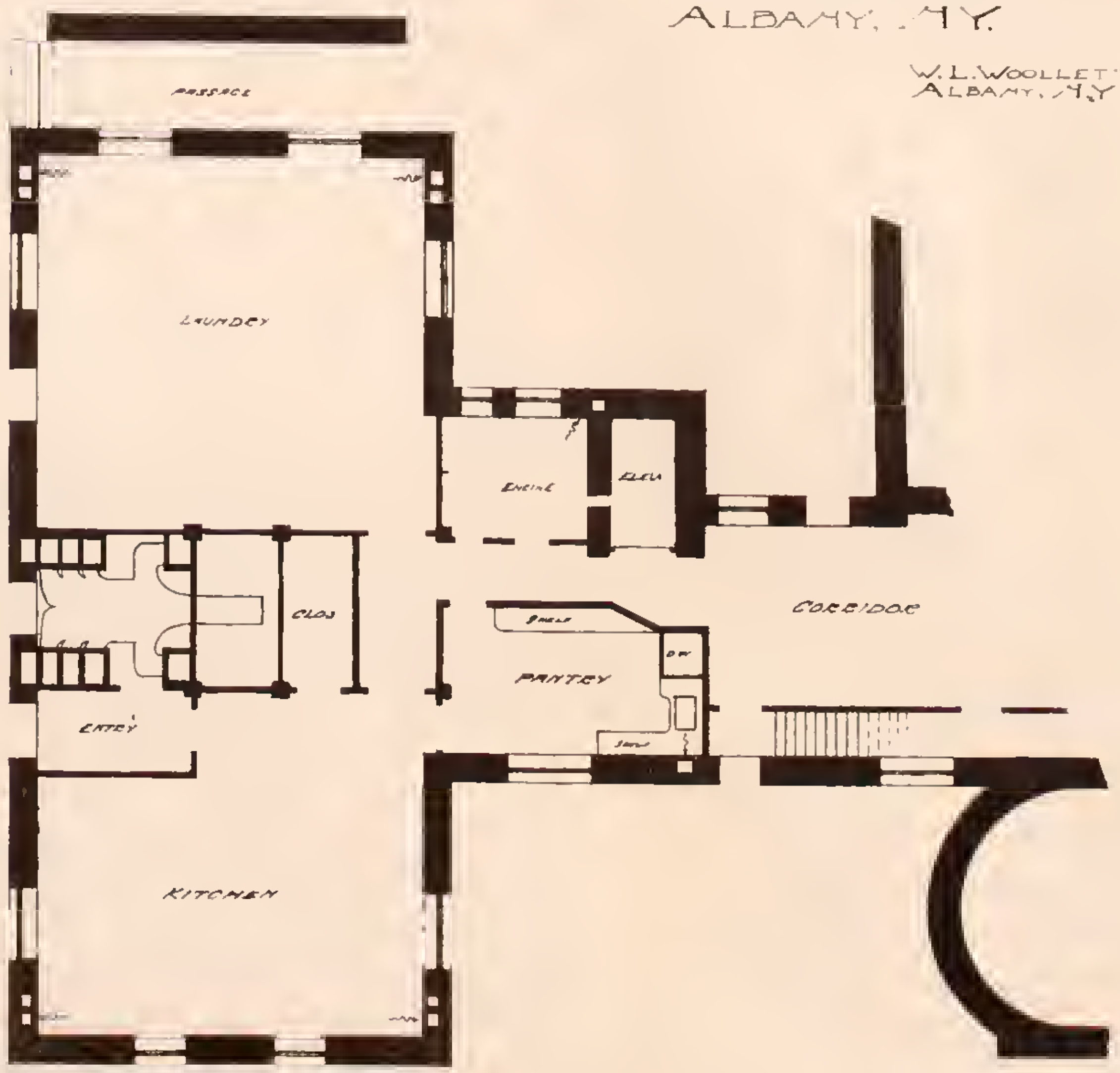
Albany Medical Annals, February, 1904



FIRST STORY

ALTERATION
ST. PETERS HOSPITAL
ALBANY, N.Y.

W. L. WOOLLETT ARCHT
ALBANY, N.Y.



BASEMENT

record of its achievements. All that has been done would have been impossible were it not for the untiring effort and zeal of men renowned in their profession, who composed the staff of the hospital at the time of its inception. They were such men as Drs. Thomas Hun, Edward Hun and Vanderpoel on the medical side, Drs. Stimson and Quackenbush on the surgical, and Dr. Robertson on the eye and ear. Of the medical staff, Dr. Thomas Hun was the best known. Because of their age and great experience, as well as their personal characteristics, they gave to the hospital a front rank among the medical institutions of that time. Drs. Stimson and Quackenbush will be, and are, remembered by a very large number of the older people of Albany as leaders in thought and professional ability.

These men were the instigators, the beginners and constructors. To those who followed, they left a record of achievement which was most commendable and honorable.

The change in the place of surgical work is noted in the next staff, in which we find an increase in the surgeons to three, the same number as the medical. This staff replaced the first one only because of their voluntary retirement or death, and was composed of Drs. Boulware, Porter, Swinburne and Balch, surgical; Drs. Bigelow, Ward, Jacob S. Mosher and Boyd, medical; and Dr. Merrill, eye and ear.

Of Dr. Swinburne, the grand old man of surgery, whose reputation and success extended beyond the seas, anything said here would be entirely inadequate. He was the teacher, operator and surgeon who gave surgery its first start in this institution, and did much to keep the hospital abreast of the times in surgical work.

To Dr. Balch, the anatomist of the Albany Medical College, the splendid lecturer, and fearless operator, whose retirement from active practice was due to loss of health in the service of his country, must be given the credit for performing in the early days of abdominal surgery, the first successful abdominal section (a double ovariotomy) performed in this city at St. Peter's Hospital. This was during the time when others, notably Dr. Vander Veer, was just beginning his work in abdominal surgery, and his success has made possible the construction and building of that other splendid institution, of which Albany is justly proud,—the Albany Hospital. Drs. Bigelow, Ward, Boyd and Merrill are still in active practice, and the esteem in which they are held by their medical brethren, which was attained, in part at least, by their work in this institution, is only measured by their large success in their respective lines of work.

Following this staff came changes and an increase in the number of physicians. For many years, in fact during all the time that St. Peter's was considered the best hospital in Albany, the staff was made up as follows: Consulting: Doctors Ward, Curtis, Bigelow, Merrill, Boyd, O'Leary and Thomas Hun; attending: Doctors Townsend, Hennessey, Vander Veer, Morrow, Hailes, Perry, Keegan, Henry Hun, Van Allen, Van Rensselaer and Munson, This was the staff of the hospital previous to the present one, and was made up of some of the most prominent Albany physicians and surgeons, some of whom are still connected with the institution. Of these, there have died Doctors Townsend and Van Allen, both sterling good men with reputations beyond the city of Albany, in their respective specialties. They were both loyal to the institution they served, and, up to the time of their death, were in constant daily attendance. They were men like the venerable Dr. Hun, who were really of the large type, broad and big in ability, professional courtesy and charitableness. Needless to say they are sorely missed amongst the whole profession.

To one man, who was of necessity in what seemed to be a hopeless minority at the beginning of the movement for the erection of the new hospital, is due, almost entirely, the credit for inspiring the confidence in those in charge of this institution, necessary to develop the plans and bring the construction of the new building to a successful termination. His honesty of purpose and freedom from selfish desires, with his ability and perseverance, have made possible its completion. To Dr. John V. Hennessy, those interested in St. Peter's Hospital will always owe an unpaid debt, and have reason to feel most grateful.

Since the opening of the hospital over 20,000 patients have been treated within its doors, and at the present time there are over 1,000 patients treated in six months in its out patient department. Every class of disease is treated, with the exception of contagious diseases.

It has been said that by the condition of the hospitals in a community, can be judged the civilization of the people. Certainly this hospital's records since its inception, cannot be questioned, and it is the Sisters' desire, as well as that of the advisory board and attending physicians, that this hospital, which has for

To Illustrate Dr. Charles E. Davis' Article on "St. Peter's Hospital."

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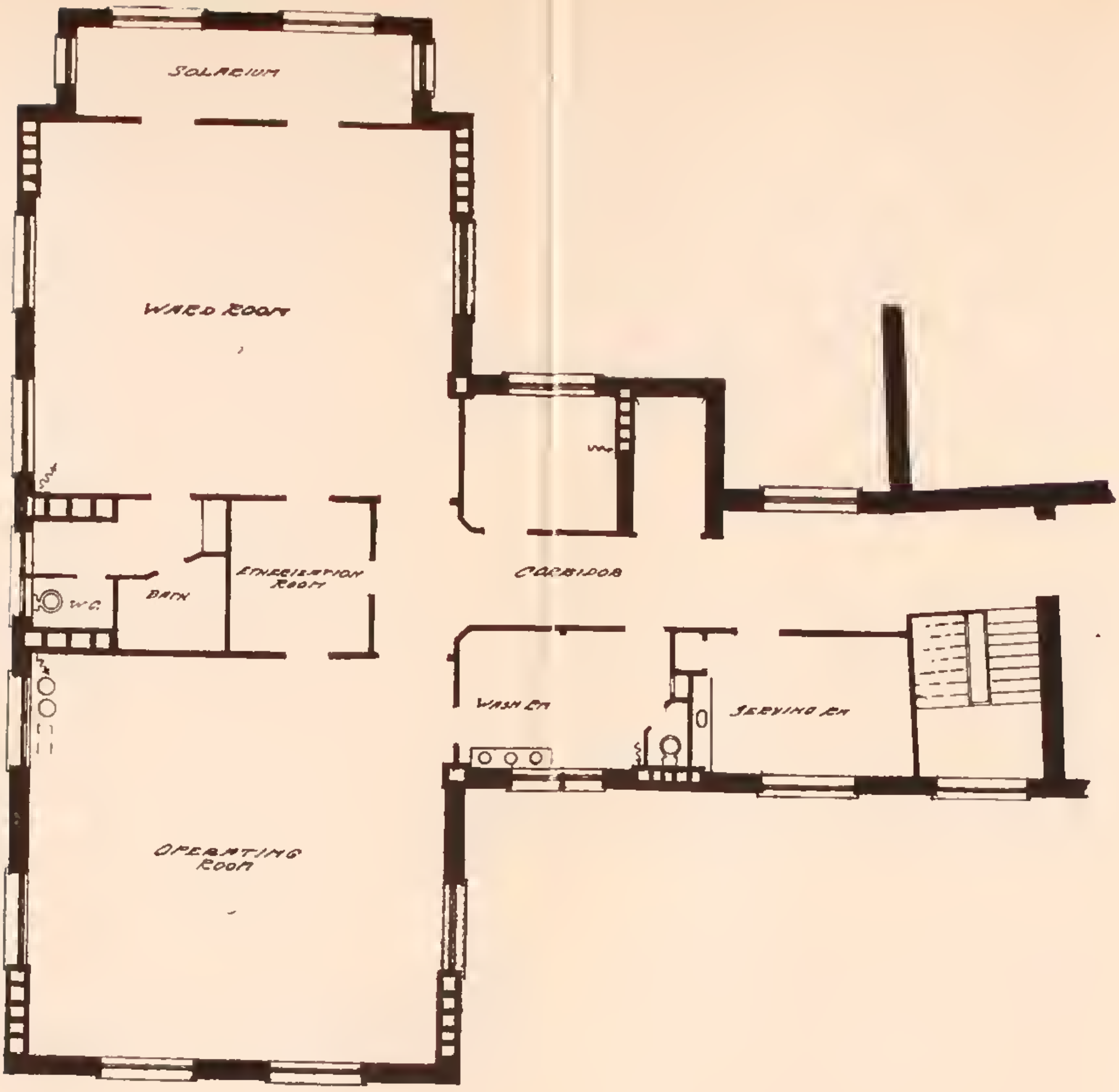
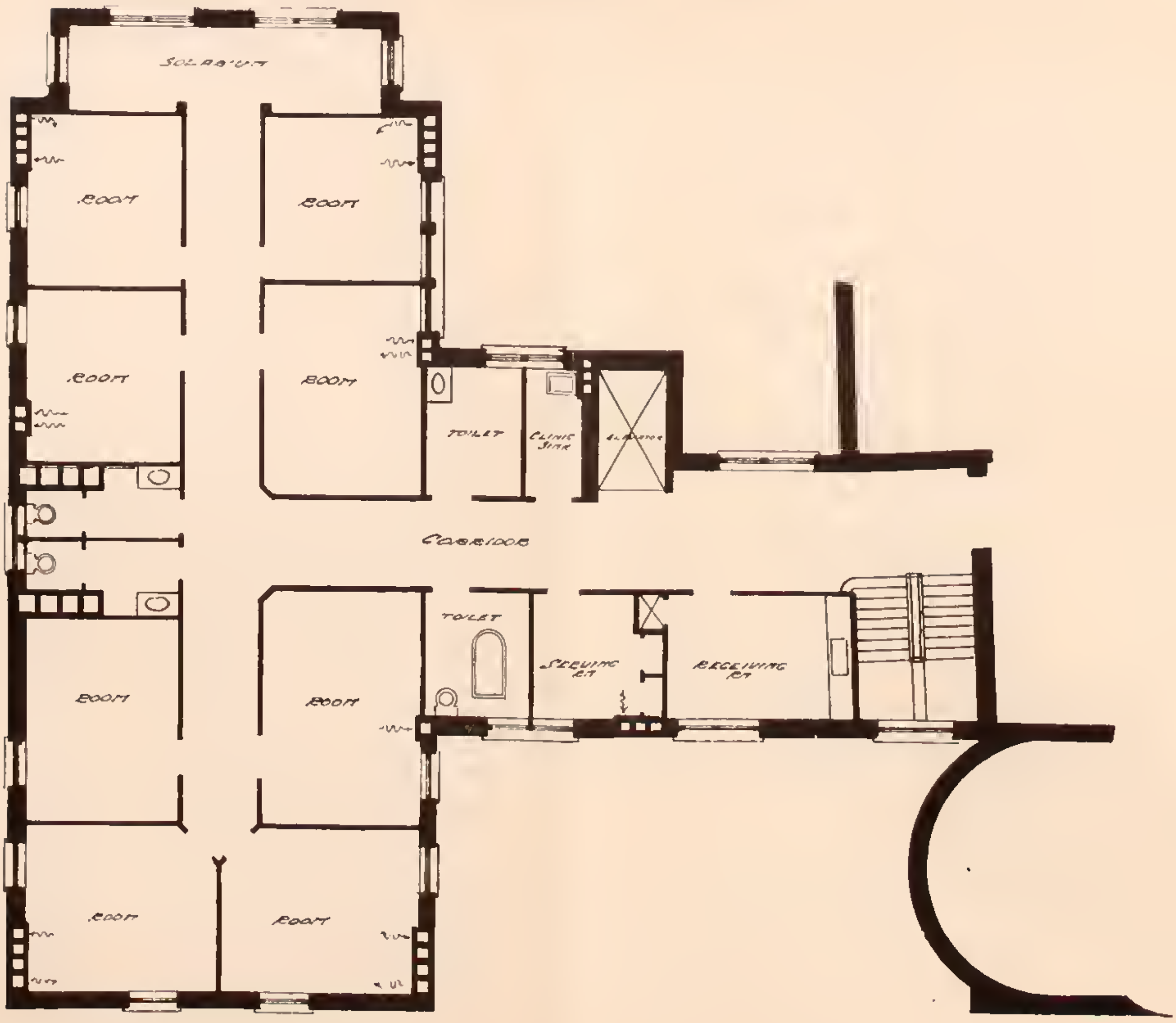


FOURTH STORY~



SECOND STORY~

years filled such a noble place in the charitable institutions of our city, should continue its work unimpaired by the lack of any modern improvement known to hospital construction.

Consequently, the Sisters, with the aid of the most charitable public, are now building this splendid new hospital, furnished with modern improvements to meet the requirements of the times, so that those applying for treatment here, will get the benefit of all that modern science has done for the sick and suffering.

The new hospital is on the site of the old one on the corner of North Ferry street and Broadway. Modern hospital construction, and especially ventilation, has made possible the erection of the building in the same situation in which it has stood for so many years. The location is most convenient to all parts of the city, especially to the railroad station and business portion. It is within five minutes by trolley of the post office and other public buildings, and admirably located for all kinds of emergency work, as well as those cases which come to it from other cities, and the country adjacent to Albany. Its situation is far more desirable than that of many of the large New York hospitals.

The heating and ventilation, which will be described later, are so perfect in operation, that the air in the building can more easily be changed than if it was surrounded by large grounds without the ventilating system. I am indebted to Mr. Woollett for the following description of the building and its construction:

The new building of St. Peter's Hospital is a fire proof construction throughout, steel, masonry and concrete being employed exclusively for structural purposes. The outside walls are of masonry—inside steel columns are the supports. The floors and roof are composed of concrete, reinforced with steel and supported on steel I beams. The partition walls are built up of blocks, composed of a mixture of cement, plaster and cinders. These blocks, being porous, constitute the lightest and most fire proof of sound-deadening walls.

The finish and trim is simple to an extreme. All plaster, corners, internal and external, are rounded. Finish floors are of Tewezzo—tile—or hard wood, as the use of room requires. Window and door casings and baseboards are of wood in plain strips with rounded edges. Doors are built up—veneered doors of best quality—absolutely plane surface and fitted with glass knobs and push-plates. Mortise locks requiring key holes are not used, except in the case of outside doors,—bolts operated by thumb catches being used.

The building is equipped with electric elevator and dummy—of best type—kitchens, diet kitchens and laundry, have complete apparatus according to the most modern ideas.

The chief interest in the plant centers in the very complete arrangements for a system of scientific ventilating and plumbing—because considerations of economy necessitated the adoption of small wards—with toilets and heat flues between—thus giving a very direct connection between the heating chamber in the basement and the ward above. The closets being ventilated also made it necessary for the toilets to be near the ventilation flues. According to the present system, all air entering the toilets by way of the doorways to ward finds exit through the seats of the closets—thus no odor or effluvia has any chance of escape to toilet rooms, or thence to the wards.

In general, the building is heated by direct radiation—the fresh air supplied through ducts coming to the rooms at the temperature of seventy degrees, thus being of use in purifying the air and not in heating. The incoming air may be tempered, however, if desired, and the rate of flow regulated by valves supplied for the purpose.

The air in a ward may be completely flushed out within five minutes, if necessary, or a flow of cool air produced by putting a few tons of ice in the blower room. The air in the building is at all times under pressure, and the proper working of the system depends on keeping outside doors and windows closed. This is a very desirable feature or requirement in a crowded city district, where dust of all sorts is prevalent. With this system, the air is cleansed by passing through cheese cloth-covered frames, heated, and the humidity regulated if desired, and then blown through ducts to the various rooms and wards.

The hospital is apart from the administration building, and is so constructed that light is abundant on all sides. The wards are large, light and airy, with a sun parlor or solarium on the south end of each, except in the surgical ward, where the solarium is a part of the ward itself, increasing it in size and admitting sun light to it at all times of the day. This was thought best because in this ward the patients are usually in bed. During the period of convalescence, they can be transferred to the convalescent ward.

One floor of the building is entirely given up to private rooms, which are large and bright. The general scheme of a floor plan is a connecting corridor off which on the left is the serving room, diet kitchen, receiving room, containing lockers for patients' clothes, and bath room adjoining, into which patients are taken before entering the hospital. On the opposite side of the corridor is the nurses' room, containing medicine cabinet, table and case records, with other accessories which make up a complete equipment for nurses' work. A feature of the arrangement of bath rooms and toilets is that the bath room is used exclusively for bath purposes, and the toilets are in a separate room.

The main operating room is very large, with tile floor and walls. It is so arranged that it can be completely flushed out at any time. The water, dressing and instrument sterilizers, are perfectly new, and of the very latest type. Every convenience and necessity known to modern surgery is found there for the surgeon's use.

A splendid feature of the new building, one which in these days of the treatment of many diseases by air and sunshine, will appeal to the professional or lay mind, is the roof garden with a glass enclosure for use in winter. The roof commands a fine view of the whole city and surrounding country in every direction, and is high enough to be entirely free from all noise and dust. The elevator runs to the roof, making the access very easy for patients from any part of the house. The glass solarium is steam-heated in winter and contains all kinds of comfortable chairs for patients. A railing will extend entirely around the roof, with seats at convenient places; reclining chairs, with awnings which can be easily adjusted, will complete the arrangement of this most popular part of the hospital. The present hospital building will be largely used for administration. In style of architecture and interior arrangement it will be made to conform to the new structure.

The training school for nurses, which was established a few years ago and which this year graduated its first class, has for its superintendent, Sister Immaculata, who is herself a graduated nurse with many years' experience in the work. The school has more applicants than can be accommodated. The number of matriculants this year is twelve. As the school is new, it has no history, but the course is complete and practical, with lectures and recitations daily, throughout the year.

From the beginning, the desire has been to keep the hospital free from that institutionalism, which, I regret to say, is seen in some hospitals of the present day. Patients are at all times regarded and treated like human beings, and not looked upon as cases upon which to try experiments for the personal glorification of over-ambitious practitioners. They are made to feel that within its walls they will find that quiet rest and peaceful happiness of the home, so that they may be returned to useful citizenship in the shortest space of time.

To the poor afflicted, who cannot be cared for at home, and to those who have no home, it has, and will continue to be, a home wherein they can find the very essential of life—health, which always means happiness and usefulness.

To be merciful to the sick and helpless, to be kind and self-sacrificing, to make this community of people the better for their presence, the good Sisters labor, and hope the Reverend Bishop and the Reverend Mother will see in them the exemplification of their teaching and the personification of the saintly Christlike life.

To this hospital, that has filled such a splendid place in Albany's charitable institutions, we ask for the profession's continued confidence and the public's generous support.

THE CONSIDERATION OF THE EPILEPTIC BY THE COURTS.

Read before the National Association for the Care and Study of Epileptics, November 5, 1903.

By JOHN B. CHAPIN, M. D.,

Physician-in-Chief and Superintendent, Pennsylvania Hospital for the Insane, Philadelphia, Pa.

The epileptic is an object of sympathy and solicitude in the home, in the community in which he lives, and is often a source of actual disturbance and danger. The special interest in his case begins with his disease, and does not cease until death—as recovery very rarely occurs. He is found in asylums for children, in the general hospital, in every hospital for the insane in greater or less numbers, in alms houses and infirmaries. He may be forsaken of friends, poor, hopeless, friendless, shunned as if a demoniac, and generally without proper care or suitable environment. Although he is not in the public gaze, he is usually heard from, as he is not regarded as properly placed in any location wherever he may happen to live. The consideration and promotion of plans for the enlightened betterment of this unfortunate class may properly, therefore, have the first claim upon your deliberations that he may have suitable care and considerate treatment.

The epileptic is subject to, and receives the consideration of the courts. By reason of his disease, his mental faculties are impaired and obtunded in various degrees. He may become irritable, feeble-minded, suspicious, have hallucinations of all his senses, delusions and illusions, and when the psychical storms have at last ceased, then the mind is enfeebled and the patient reaches the terminal stages of dementia. In the course of the various and varying stages of his disease the element of self-control is gradually weakened, mental confusion from delirium, and passionate outbreaks precede and follow the convulsive seizures, during which criminal acts of a terrible character are committed. It is not necessary for our purpose to present in this connection all the clinical aspects of this disease further than to recognize the fact that the epileptic is a person who is insane and unconscious during the convulsive period, and, also, for a time preceding and succeeding the seizure. During these stages crimes have been committed for which he is called to appear in court for trial. It is a further clinical history of many of these cases that during the intervals between the attack, in a large number of cases, no deviation from a normal state of mental health can be detected. If a crime is committed during this apparent return to a normal state, the legal responsibility of the epileptic charged with the criminal act is one of the embarrassing features attending all medico-legal inquiries in these cases.

In 1855, Andrew Fyler was tried in Syracuse, New York, for the murder of his wife. The case is reported in *Ray's Medical Jurisprudence,* and has been referred to as among the first in this country where a defense of epilepsy was offered, but whether this is true or not I am not now able to state. It is, however, a coincidence that in 1854 a Treatise on Epilepsy, its History, Treatment and Jurisprudence by Dr. Delasiauve appeared, in which he cited cases and commented upon the frequency of nocturnal attacks, and in the case of Fyler, owing to the observations of this author, the experts were led undoubtedly to entertain the hypothesis that Fyler was subject only to nocturnal attacks of epilepsy, and the crime with which he was charged was committed in the night in an epileptic state. The prisoner was convicted and subsequently transferred to the State Hospital at Utica, where the writer closely observed him for two years, during which time he was not known to have had an epileptic seizure. He was eventually discharged recovered. Two other cases were tried in the same State which excited much general professional interest. The defense was epilepsy, but both were convicted, although in each case particular stress was laid upon the hypothetical existence of nocturnal convulsions. They were eventually discharged from the State asylum for insane criminals as recovered. The writer has been a medical witness and examiner in six capital trials where it was alleged that the person charged with homicide was an epileptic. In every one of these cases the crimes were of an atrocious character, but it was not possible to establish by any witness the occurrence of a single convulsive seizure. The existence of epilepsy was wholly hypothetical. The atrociousness of the crimes, and absence of any other line of rational defense seemed to have suggested to counsel the probable existence of epilepsy as the last and only resort. In one case, for instance, the medical witness for the defense testified as to the duration of an epileptic attack that it might not require more time from the beginning to the end of the seizure than that sufficient to pull the fatal trigger, although he might have been sane when he pointed the weapon at a vital part. In six of these cases the only alleged evidence of disease that was presented was the commission of the crime itself, or in other words, the criminal act. It has also been alleged that what has been termed "mental epilepsy" may exist—or in other words, that epilepsy may show itself by some psychical manifestation of a transitory nature without physical symptoms or without even establishing the occurrence of a single convulsion. Momentary insanity, or *Mania Transitoria,* and irresistible impulse, have been perhaps honestly called manifestations of mental epilepsy, and the courts have been asked to instruct juries to acquit. Can we wonder that the judges have not followed all these various lines of psychological theorizations? And may they not declare, as perhaps they may have done in their opinions, that irresistible impulses have existed in connection with crimes, because no attempt was made to resist them, or because they *were* not resisted? Is it not a reasonable demand that the condition of irresponsibility must be determined by some other test than the criminal act alone?

If the hypothesis of the existence of epilepsy is a most difficult one to prove or disprove, it is eagerly seized upon by the resourceful lawyer. It must be remembered also that epilepsy has been feigned successfully, and that prison physicians, prison keepers, and courts have been deceived. A remarkable case of this character was reported by Dr. C. F. MacDonald in the *American Journal of Insanity,* Vol. 31—known as James Clegg, the *"Dummy Chucker,"* in the parlance of the criminal classes of England, who successfully and repeatedly deceived physicians, experts, courts and prison officers. The shamming of James Clegg was detected as the result of prolonged observation. For various reasons then it is but fair and just to all concerned that a prolonged period of observation and isolation both night and day of the criminal should be granted in all cases of suspected epilepsy. Clinical experience and observation go to show that in all forms of this disease some of the recognized marks of its actual existence will, soon or late, be observed.

But suppose that no convulsion has ever been actually observed in a suspected case, and there is nothing but the criminal act, or, take another hypothesis, that at long intervals a convulsion may have occurred, and on examination into the mental capacity of a criminal the physician cannot detect or point to any mental failure, no stigmata, nor any loss of consciousness, any incapacity to appreciate the nature and quality of his acts, or the proceedings of a trial court, and nothing appears except some dullness, sluggishness, unwillingness to answer questions, all of which might be easily assumed on suggestion. Suppose further that the criminal act did not, so far as known, appear to be immediately connected with the confusional or delirious stages preceding or succeeding a seizure. The judges will hardly instruct the jury to follow and accept the hypothesis of a medical witness in the absence of all real foundation of it. Indeed, I remember a charge to a jury where the judge spoke of physicians as respectable gentlemen who render much good service in the line of their profession when sickness and pain occur, but he said further, "gentlemen of the jury, when they come into this (my) court and attempt to influence you by their theories, then I direct you to use your common sense." To return to the hypothetical cases above referred to the court may not, and in accordance with my observation as I have heard rulings, they will not make discriminations as to the quality of guilt, or consider any other standard of responsibility than that which conforms and is in harmony with decisions delivered by the highest court. They will continue to discriminate between what physicians call insanity and legal responsibility. They have declined to admit the irresponsibility of the epileptic, no matter how many convulsions he may have had, unless it were shown that the criminal act was committed during or preceding the seizure, and was done in a state of unconsciousness. The careful clinical observations of J. Russell Reynolds show in over thirty-three per cent. of epileptics no deviation from mental health, and for their station in life and education exhibited the full average vigor of their intellectual faculties. The remaining showed varying indications of failure of mental faculties.

If a medical witness states that invariably there is a mental failure to some degree, and that the victim is irresponsible in every case of epilepsy notwithstanding the seizures occur only at very long intervals and do not seriously alter the general character, he will be confronted to his confusion perhaps, and be led to reverse himself with questions that have so often done duty, as: "Was Napoleon insane?" "Does the witness believe Julius Cæsar was insane?" "Was Mohammed insane?"

Speaking from my own observation, it may be stated that a failure to acquit in all of the cases that have come under my observation was owing to the instructions of the court that unless the criminal act was committed during the epileptic state, or during the immediate period preceding or succeeding the stage of convulsion, and where it was shown that in the intervals the defendant possessed the usual elements that constitute a state of responsibility.

In the other cases where no epileptic convulsions were known to exist, and where it was alleged that nocturnal attacks might account for the crime, the defense failed, as nothing was proven. The proof of the occurrence of night attacks, and the same is partially true of day attacks, is always difficult, for the reason that they can rarely be observed, and quite as rarely are they actually observed by persons competent to form and express an opinion. During the weeks or months that a criminal is confined in jail or prison awaiting trial, in my experience it is very rare, if it ever occurs, that any careful observance of suspected cases of epilepsy is made by the prison or jail officers, or physicians, so that the clinical history, if any is procurable, is generally of a negative character.

In conclusion the following propositions are submitted for your consideration and reflection, and some declaration:

1. That it is the result of observation that epileptics do show

some mental failure, as loss of memory, irritability, a tendency to become suspicious, ugly, revengeful, easily aroused to passionate outbreaks, emotional, and often the moral and religious side are intensified, as the disease and age advance.

2. That these changes become more marked during the interval between convulsions as the intervals between seizures diminish.

3. That in every medico-legal inquiry in any alleged or suspected case of epilepsy it is essential to establish the existence of a paroxysm, or paroxysms, beyond a reasonable doubt by actual observation, and not by hypothesis alone.

4. That in a trial of a criminal where epilepsy is interposed as a defense, if mental or moral degeneration has actually taken place, and when the occurrence of epileptic convulsions has been shown to exist, the defendant is then entitled to acquittal and disposed of as provided in such cases.

5. If a person has committed a criminal act and has had epileptiform seizures in infancy; or at some period has had an epileptic convulsion and the criminal act was not committed near to or succeeding a seizure and no mental failure can be shown, then the most the defendant can expect is conviction with a recommendation to mercy, if the charge is proven.

6. That the convulsion is not the actual disease but is an outward manifestation of a complex psychical and physical state due to some disease, vicious habits, traumatism, or the result of degeneration following an unfortunate inheritance, and when it has been once established and recurs even at prolonged intervals, it is the rule of experience that mental and moral degeneracy occurs and progresses gradually.

THE TREATMENT OF DIPHTHERIA.

Read before the Saratoga Springs Medical Society, November 6, 1903.

By DOUGLAS C. MORIARTA, M. D.,
Saratoga Springs, N. Y.

Mr. President and Gentlemen:

In reviewing such literature as was at my command on the treatment of diphtheria, I found some thoughts that strengthened my personal experience and recent conclusions concerning antitoxin in the treatment of this disease. While all statistics show the value of antitoxin, they also show very conclusively another fact, *i. e.,* that the fatality from this disease is steadily and continuously growing less; this clearly demonstrates that there are a goodly number of men who are gradually accepting antitoxin in their practice; while others were only using antitoxin when forced to do so by the condition of the patient, and then only half heartedly. This no doubt seems odd to those of you who were first to use it and learn its value. Yet when we consider the eminent teachers who condemned antitoxin most strenuously for a long period in the press and medical societies, or whenever an opportunity presented itself, as well as the furor created against it by the one or two sudden deaths at the time of its injection, in the early history of its use, it is not so surprising.

In 1898 I presented a paper to this society giving the analysis of 207 cases of diphtheria which I had personally observed as health officer; and I now present 126 more cases of diphtheria which have occurred since that time, a period of about five years. I shall then put them together and by analysis attempt to demonstrate the treatment of diphtheria. Several statements made in the paper mentioned, I consider pertinent and will reiterate them:

First. The early diagnosis of diphtheria, which means the early use of antitoxin, is imperative.

Second. Antitoxin should be used in suspicious cases as well as in all true cases of diphtheria.

Third. Intubation or tracheotomy should be done at the very first indication of distressed breathing or cyanosis in laryngeal diphtheria.

Fourth. No case of diphtheria is too desperate or too far-advanced that the omission of antitoxin is not reprehensible.

I will also repeat the words of a practicing physician of our village which I read at that time; to wit, he informed the parent of the child that he had used antitoxin a great many times, and to his knowledge so many deaths had resulted from its use, that he would only use it at their solicitation. Inasmuch as he had had only one case as shown by our board of health records, you can draw your own conclusion as to his veracity. This quotation would not be of much interest except that during the past five years the same individual has had four cases of diphtheria treated without antitoxin, and of this number he has lost three, or seventy-five per cent. of all his cases. This is an unfortunate example of a medical man's practice, yet, there are others who, while they use antitoxin, delay its use one or more days, and so possibly jeopardize the lives of their patients. It is humiliating to think that there are men in our profession who are so indifferent to the proper treatment of such a fatal disease as diphtheria that they are willing both to jeopardize and sacrifice the lives of their patients.

The statement that antitoxin is a specific for diphtheria, and that, *per se,* it is harmless, I trust admits of no argument here to-night. I would, however, emphasize the necessity of its use early, in large doses, and often. These directions are imperative in virulent cases; though I would have them followed always whether in infants, children or adults; and if a reliable product is used, I do not hesitate to go on record as believing that death from diphtheria would seldom have to be recorded.

In what quantities, and how often should antitoxin be given, are questions to be considered this evening. I have always thought I was an advocate of large doses of antitoxin, but I am now certain I have not had the correct knowledge of the quantity that was indicated to insure a safe and speedy recovery from diphtheria. This was due in a measure to the conclusion that antitoxin was toxic in large or unusual doses as we estimate them. I began to think more definitely on this point last July when I was informed by our state department that I could use tetanus antitoxin practically without limit and with impunity. If one antitoxin, why not another? So when we consider what antitoxin is, we can easily conclude it is not toxic in any dosage and it is much better practice to use more than is required, than to risk a life by not using enough. This statement seems odd when I recall the anxiety, apprehension and precautions taken ten or twelve years ago when injecting five hundred or one thousand units of antitoxin.

I suggest that our initial doses of antitoxin be decidedly larger in all cases of diphtheria than has been our practice and that they should be more frequently repeated, imperatively so in sharp cases. We will thus not only save our patients' lives from this horrible disease, but we will save them from many of the sequelæ as well. I refer to sudden and fatal heart failure, as well as the lesser paralysis of the muscular system, particularly the muscles of deglutition and phonation. We have of course at times to overcome the family prejudices against antitoxin, but we must teach them the facts as best we can and that the conditions about which they are apprehensive result because antitoxin is not used, and not because of its use.

Before antitoxin was known, there was a large percentage of the small number who survived an attack of diphtheria, who suffered from neuritis as mentioned. To avoid these complications it was imperative to keep the patient absolutely quiet and recumbent for many days, and to be most careful concerning the character of the food allowed the patient; the latter because of the sudden paralysis of the muscles of deglutition which were apt to occur suddenly and the patient choke to death. Now we know, both theoretically and practically, that if antitoxin is used in proper quantities, early and often, the toxins will not be developed to menace the lives of our patients. During the past five years, antitoxin has been generally used by us all in the treatment of diphtheria, and I know of only a single instance of neuritis or heart failure following diphtheria. This was in my own practice. While I used antitoxin early, I injected only 2000 units and did not repeat the dose for twenty-four hours. Had I used double the amount and repeated the antitoxin in four or six hours, I do not believe the condition could have occurred. I know of no instance where intubation or tracheotomy has been done in the past five years, though before antitoxin was given so generally it was of very frequent occurrence.

Local remedies are used by us all in this disease though I am sure if antitoxin is employed under the conditions mentioned, that they are not of any service, other than as a matter of cleanliness and comfort to the patient. People expect some remedy to be prescribed for local use and relief, and will not be content without it; accordingly I use as a wash some antiseptic solution, peroxide of hydrogen or bicarbonate of soda, and direct the latter to be used hot. A full nutritious, easily digested diet is always to be directed. Alcoholic stimulants, sulphate of strychnia and tinct. chloride of iron are of value as indicated. I do not deem it pertinent to mention specially the personal hygiene of the patient or nurse, or the precautions necessary to prevent the spreading of the disease. It is sufficient to mention that a most virulent case can readily be communicated from a very mild one and that every possible precaution should be observed to prevent the infecting of others by properly isolating the patient and nurse; everything leaving the room, from linen to dishes, should be made clean and safe before coming in contact with another.

There is another important phase in the treatment of diphtheria which is essential for us to consider, at this time. I refer to the prophylactic treatment. I do not believe any of us use antitoxin as generally as we should for this purpose, but we will in the near future. Its value in this particular is constantly being determined by the statistics of asylums and institutions where an outbreak has occurred. Its immunizing quality, though of short duration, is an established fact, the period being in proportion to the quantity of antitoxin used. For this purpose, an injection varying from 250 to 500 units is advocated; this quantity would probably produce immunity for ten or fifteen days.

I would request your close attention to the brief analysis of cases which I have to present to you; all of these cases occurred in our village during the past seven years.

		Number of cases treated with antitoxin.	Cases treated *without* antitoxin.	Number of deaths from diphtheria treated with antitoxin.	Number of deaths from diphtheria treated *without* antitoxin.	No. cases of diphtheria that were moribund when antitoxin was administered.	Percentage of deaths including all cases treated with antitoxin.	Percentage of deaths in cases of diphtheria *without* antitoxin.
Total number of cases from Jan. 1, 1898, to Oct. 15, 1903.	126	121	5	5	4	3	4⅛%	80%
Cases previously reported from Jan., 1896, to Jan., 1898.	207	188	19	9	7	7	4¼%	33%
Total number of cases in seven years.	333	309	24	14	11	10	4⅜%	46%

Eliminate moribund cases treated with antitoxin and we have about 1%.
309 cases treated with antitoxin with 14 deaths.
24 cases treated *without* antitoxin with 11 deaths.

While the number of cases, 333, from which I wish to demonstrate that there is but one remedy for diphtheria, is small, relatively, yet I consider them of the greatest possible service in establishing this fact to-night. This is so because all the cases tabulated have occurred in our village during a period of seven years, and so must of necessity represent an average of virulence when considered as a whole. Of this you are the best judge. This statement applies with equal force to the cases treated without antitoxin as they are scattered along irregularly over the same period of time. I would particularly call your attention to the enormous mortality of the cases treated without antitoxin during the past five years; this has been eighty per cent. as against four per cent. of *all* cases treated with antitoxin, or if we eliminate the moribund cases, would be only a trifle over one per cent. You will also notice that the per cent. of fatalities where antitoxin is used remains practically the same when we include the 188 cases reported in 1898. Three of the fatal cases reported from January 1, 1898 to October 15, 1903 occurred in the practice of one man. During this period he had four cases in all and lost three of them, or seventy-five per cent. Or perhaps a more forcible illustration of his absolute indifference to the value of antitoxin and his patients' lives is to state that his mortality in a total of four cases was one-third the number of our 122 cases.

All cases of diphtheria are serious and should be so considered. Antitoxin is a specific for diphtheria, and *per se,* is absolutely harmless; when it fails it is because of the character of the product, the stage of the disease in which it is used, or else the quantity employed was too small. We should not be censured if we fail in a case of diphtheria if we are called after the disease is well-advanced; but surely we are open to censure if we use too small doses or at too long intervals.

In conclusion, the only rational treatment of diphtheria known to-day is with antitoxin. I also believe that the 333 cases seen by us in the past seven years substantiate my assumption that the early and liberal use of antitoxin in diphtheria would make the recording of a death from this disease the exception.

REPORT OF THIRTY OPERATIVE CASES OF APPENDICITIS.

Selected Histories.

Read before the Medical Society of the County of Albany, December 9, 1903.

By ALVAH H. TRAVER, M. D.,
Instructor in Surgery and Assistant Demonstrator in Anatomy, Albany Medical College.

In looking over the histories of the following cases, I have learned some facts that I did not know before, and I trust that, although I may say nothing new on the subject, yet by giving you the histories of some of these cases and again bringing known facts to your attention, they may become the more fixed in your minds.

Case I. Acute perforated appendicitis. Local peritonitis present ten hours after the beginning of attack.

Mr. C. G. Age, 31. Hotel keeper.

Patient has never had any severe illness, nor intestinal trouble of any kind. August 23, 1899, he came home from work at 10 P. M., feeling well, except for a severe cold. He ate a light supper and went to bed. At 11 P. M. he was taken with severe abdominal pain. I was called to see him at midnight. He was coughing frequently, and complained of severe pain in epigastrium and right iliac region.

Examination. Abdomen was slightly distended, and very sensitive over right iliac region. Temperature, 101; pulse, 90. The next morning, at 8 o'clock, the right iliac region was very rigid and sensitive. Temperature was 102 and pulse 115. Operation was performed at 9 A. M. The appendix was found perforated and pus present about cæcum, but no distinct abscess was found. The pelvis was carefully sponged out and glass tube and iodoform gauze drainage introduced. Twenty-four hours after operation patient developed pneumonia, from which he made a good recovery.

I speak of this case because of its early perforation. Many authors state that one should wait forty-eight hours and if the case then shows no signs of abating, operation is indicated. In this case, the appendix was found perforated and peritonitis was developing ten hours from the time the attack began.

Case V. Gangrenous appendicitis. General peritonitis.

Patient referred to me by Dr. Mereness.

Mr. G. D. Age, 19. Student.

No previous history of intestinal trouble. August 2, 1901, while playing tennis, the patient was taken with vomiting. He consulted his physician, who found very slight tenderness in epigastrium and right iliac region. Temperature 99, and pulse 80. The next day the bowels moved naturally; patient was free from pain and felt practically well. At 4 P. M. the temperature was 99 and pulse 84, while at 8 P. M. temperature was 104 and pulse 124; bowels very distended and general abdominal tenderness present. Operation was performed, appendix was found gangrenous and general peritonitis present. The peritoneal cavity was thoroughly irrigated and glass tube and iodoform gauze drainage introduced. The patient died on the second day of peritonitis.

This case shows the rapidity of development and the uncertainty of the outcome. It seemed a very mild case and at 4 P. M. the patient was considered practically well, while at 8 P. M. he was in an exceedingly dangerous condition.

Case VI. Catarrhal appendicitis.

Mr. W. B. Age, 19. Laborer.

Patient has always been troubled with chronic constipation. For several months he has had almost constant pain in right iliac region. Examination was negative, except for slight tympanitis. The patient was seen frequently for about two months, and various intestinal antiseptics and cathartics were given, but his condition gradually grew worse, till coughing or any jar, as in walking or riding, caused severe pain in right iliac region, and he was unable to do any work. At times he complained of slight tenderness, but at no time was there any fever.

Exploratory operation was advised. Examination of the intestines showed no cause of the trouble. As a last resort the appendix was removed, although it appeared practically normal. Since the operation the patient has had no pain and is attending to his work.

This was not a case of "Brain Appendicitis," as the patient did not know the location of the appendix and appendicitis was not mentioned till an operation was advised. Although the appendix appeared practically normal, yet its removal relieved the patient of his suffering.

Case XI. Perforated appendicitis. Septic peritonitis, in a child three years old.

E. S.; female. Age, three years.

The patient's previous health has been good. On April 27, 1902, she became peevish and nauseated. Bowels were constipated.

Examination. The patient cried so that examination was very unsatisfactory. Tongue was coated. Temperature 101 and pulse 90. Believing it to be a case of auto-intoxication, I gave calomel. For three days her condition remained about the same; but, on the fourth day, bowels became very distended and, although she cried whenever I came near her, yet she cried harder when pressure was made over right iliac region. Appendicitis was feared, so I asked Dr. Rooney to make a blood count. He reported a leucocytosis of 56,000. An immediate operation was performed. The appendix was perforated and pus present, but no distinct abscess was found. The peritoneal cavity was irrigated with salt solution, and glass tube and iodoform gauze drainage introduced. The patient made a rapid recovery.

In this case the symptoms were such as we often see in children, but which rapidly disappear as soon as calomel is given. Although examination was very unsatisfactory, yet from the history, blood count and general appearance of the child, I felt sure that she had some grave intestinal trouble and probably appendicitis. So I felt justified in operating and found my diagnosis correct.

Case XIV. Gangrenous appendicitis. General peritonitis, with none of the typical symptoms of appendicitis.

Mr. A. L. Age, 21. Printer.

September 10, 1902, the patient came to my office and said he had a little pain in his bowels and would like some physic. Calomel was given. September 12 he was taken with severe diarrhœa and vomiting.

Examination. Tongue was coated. There was slight epigastric tenderness, but temperature and pulse were normal. Nausea tablets and diarrhœa mixture were given. For two days he felt fairly well, then had a second attack of diarrhœa and vomiting. Bowels were not sensitive or distended. Temperature 99, pulse 85. September 16, six days from beginning of the attack, he had a severe chill followed by vomiting. I saw him at 10 A. M. He complained of nausea and epigastric pain. Examination of abdomen showed bowels normal except for slight epigastric tenderness. Temperature 102, pulse 112. At noon nausea was a little less troublesome. There was slight tenderness in epigastric and left iliac region. Temperature 103, pulse 120. At 4 P. M. the bowels were slightly distended and epigastric and left iliac regions still slightly sensitive. He complained of no pain in right iliac region and it was not sensitive to pressure. A blood count by Dr. Rooney showed leucocytosis of 5,000. Although there were no symptoms referable to the appendix, yet I feared it to be the cause of the trouble and advised an operation. The patient replied that he supposed there were pain and tenderness in the right side if one had appendicitis.

The operation revealed a gangrenous appendix and general septic peritonitis. The peritoneal cavity was irrigated with salt solution and glass tube and iodoform gauze drainage introduced. The patient made a good recovery.

This case I saw from the very beginning of the trouble. He never had any pain or tenderness in right iliac region or any muscular rigidity. With all his trouble he had no leucocytosis and even twenty-four hours after operation there was a leucocytosis of only 9,000. I studied the case carefully, yet at the time of operation I did not feel at all certain of my diagnosis.

Case XV. Perforated appendicitis. Septic peritonitis in patient sixty-eight years of age.

Referred to me by Dr. Mereness.

This case does not properly belong to this group of cases as I did not operate on it, but I wish to report it as it is somewhat like the previous case.

Mr. J. Age 68. Banker.

The patient has never been a very strong man. One year ago, after eating freely of cabbage, he had a severe attack of abdominal pain. Otherwise the history is unimportant.

January 15, 1901, while staying at a hotel in this city, he was suddenly taken with vomiting and severe abdominal pain. The physician who saw the case found temperature 99 and pulse 100, and of very poor quality. Loud mitral murmur was heard. Examination of abdomen was negative.

For the next two days patient was free from pain, took some nourishment and said he felt well. His temperature remained about 99, but his pulse went to 110, and was very weak and irregular.

On the 18th, four days after the beginning of the attack, he consented to go to the hospital, but said he would not allow anyone to operate on him. He said he was not sick, and persisted in walking to the carriage and from the carriage into the hospital.

Examination on admission to hospital. Temperature 99.2, pulse 120, intermittent and weak. Abdomen was not distended, but general rigidity was marked. It was not sensitive except in epigastrium. The patient did not complain of any pain, and said he was strong enough to go home. Dr. Vander Veer saw the case in consultation, but did not think an operation was justifiable. At 7 P. M., one and a half hours after entering the hospital, the patient suddenly died. Autopsy showed perforated appendix and septic peritonitis.

At no time did this patient complain of pain in right iliac region. Owing to the age of the patient and the condition of his heart, we were not anxious to operate, and patient would not have allowed an operation had we desired to perform one.

Case XX. Traumatic appendicitis.

Mr. E. E. Age, 24. Brakeman. Referred to me by Dr. Green.

The patient has always been strong and healthy and has never had any intestinal trouble of any kind. March 1, while applying a brake, the chain broke and patient fell between the cars. He received a crushing injury to right iliac region, which resulted in a large traumatic hernia. On pressure a very sensitive mass could be felt in the region of the appendix, which remained present throughout the summer. All this time he was troubled with constipation and tympanitis, and had frequent attacks of most intense pain in right iliac region. October 19 he was taken with a typical attack of appendicitis.

At operation, omentum and intestines in right iliac region were found firmly bound together with old firm adhesions, and appendix was perforated. Glass tube and iodoform gauze drainage were introduced. The patient recovered.

The reasons which led me to conclude this attack of appendicitis was caused by previous injury are:

(1st.) The distinct evidence of injury to right iliac region.

(2d.) The inflammatory tumor in appendicular region following injury.

(3rd.) From the time of the injury to the onset of the attack of appendicitis he was troubled with tympanites, constipation and constant pain in right iliac region. He had been troubled with none of these previous to injury.

(4th.) At operation the old firm adhesions gave evidence of previous severe inflammation. It is to be noted that he had had no previous attack of appendicitis or other cause for such inflammation except the injury.

Case XXIV. Chronic appendicitis. Intestinal obstruction.

Mrs. K. S. Age, 34. Patient referred to me by Dr. Hailes.

When patient was twelve years old she had a severe attack of inflammation of the bowels, which the doctor said was due to an abscess of the ovary. This abscess ruptured into the vagina. Since that time she has had no intestinal trouble.

September 6, 1902, the patient was taken with severe abdominal pain, accompanied with vomiting. Examination showed bowels somewhat tympanetic. Tenderness and rigidity were marked in right iliac region. Temperature 100, pulse 100. Her condition gradually improved, but on the third day pain became very severe in right side andtenderness and rigidity was marked. Patient vomited several times. Temperature 102, pulse 110. Leucocytosis of 13,000 present. Diagnosis of appendicitis was made and operation advised.

Firm adhesions were found in region of appendix. The ilium, about two centimetres from ilio-cœcal valve, was folded in on itself and firmly held by old adhesions, thus causing intestinal obstruction. The appendix was atrophied and its caliber obliterated as result of the old inflammation. The adhesions were freed and remains of appendix removed. Patient made a good recovery.

This patient doubtless had appendicitis with peritonitis twenty years ago, and the adhesions resulting therefrom caused the present attack of intestinal obstruction.

In examining the accompanying table of cases the following facts will be observed.

Number of cases, 30. Males, 17; females, 13.

The youngest patient was three years old (Case 11), and the oldest sixty-eight (Case 15).

The greatest number of attacks any patient had, six (Case 8).

Condition of appendix: Gangrenous, 5 (Cases 4, 5, 10, 14, 18); perforated, 6 (Cases 1, 11, 15, 20, 23, 30); inflamed, acute, 14 (Cases 2, 3, 7, 9, 16, 17, 19, 21, 24, 25, 26, 27, 28, 29); inflamed, chronic, 4 (Cases 6, 8, 12, 22); Abscess, 1 (Case 13).

Complications present at time of operation: Traumatic hernia, 1 (Case 20); local peritonitis, 3 (Cases 1, 23, 30); general peritonitis, 8 (Cases 4, 5, 10, 11, 14, 15, 18, 20); Pyosalpinx, 2 (Cases 9, 27); pulmonary tuberculosis, 1 (Case 13); Tubercular cervical adenitis, 1 (Case 16); intestinal obstruction, 1 (Case 24).

Complications following operation: Acute nephritis, 1 (Case 1); lobar pneumonia, 2 (Cases 1, 22); pleurisy, 1 (Case 28); number of deaths, 5 (Cases 5, 10, 15, 18, 22); cause of death, pneumonia, 1 (Case 22).

Three of the severe cases of general peritonitis died and one case (No. 15) died of general peritonitis, but this case I did not operate on. This gives a mortality of 13.7+ per cent. of the cases operated on.

This is a small number of cases to report, but I think the histories are of sufficient interest to be worthy of study, as they show some of the unusual and complicated forms which appendicitis may take.

No.	Name	Sex	Age	No. of Attacks	Condition of Appendix	Complications	Result
1	E. G.	M.	32	1	Perforated.	Local peritonitis. Acute nephritis. Lobar pneumonia.	Cured.
2	B. V.	M.	21	1	Acute inflamed.	....	Cured.
3	H. E.	F.	12	1	Acute inflamed.	....	Cured.
4	J. F.	M.	24	2	Gangrenous.	General peritonitis.	Cured.
5	G. D.	M.	19	1	Gangrenous.	General peritonitis.	Dead.
6	W. B.	M.	19	1	Chronic inflamed.	....	Cured.
7	M. R.	F.	22	2	Acute inflamed.	....	Cured.
8	S. H.	F	30	6	Chronic inflamed.	. ...	Cured.
9	F. B	F.	23	2	Acute inflamed.	Adherent ovary.	Cured.
10	H. J.	M.	35	2	Gangrenous.	General peritonitis.	Dead.
11	E. S.	F.	3	1	Perforated.	General peritonitis.	Cured.
12	V. S.	F.	46	3	Chronic inflamed.	....	Cured.
13	E. D.	M.	25	1	Abscess.	Pulmonary tuberculosis	Cured.
14	A. L	M.	20	1	Gangrenous.	General peritonitis.	Cured.
15	M. J.	M.	68	2	Perforated.	General peritonitis.	Dead..
16	C. R.	F.	24	2	Acute inflamed.	Cervical adenitis.	Cured.
17	E F.	F.	14	2	Acute inflamed.	....	Cured.
18	M. P.	F.	12	1	Gangrenous.	General peritonitis.	Dead.
19	A. G.	F.	19	1	Acute inflamed.	....	Cured.
20	E. E.	M.	22	1	Perforated.	General peritonitis. Traumatic hernia.	Cured.
21	R. M.	M.	12	1	Acute inflamed.	....	Cured.
22	J. D.	M.	30	3	Chronic inflamed.	Pneumonia.	Dead.
23	P. E.	M.	28	1	Perforated.	Local peritonitis.	Cured.
24	K. S.	F.	35	2	Acute inflamed.	Intestinal obstruction.	Cured.
25	S. B.	F.	35	2	Acute inflamed.	....	Cured.
26	A. S.	F.	35	1	Acute inflamed.	....	Cured.
27	M. K.	F.	27	2	Acute inflamed.	Pyosalpinx.	Cured.
28	R. M	M.	17	1	Acute inflamed.	Pleurisy.	Cured.
29	S. M	M.	16	3	Acute inflamed.	....	Cured.
30	G. J.	M.	13	2	Perforated.	Local Peritonitis.	Cured.

Editorial

> "This Dr. O—— made several visits to Durham, and I remember to have heard my brother-in-law once ask him whether he was a Brunomian or a Cullenite; to which he replied, smartly: 'Sir, I am a doctor myself!' The pith of this answer will be felt, when it is known that at this period, and indeed for some years after, there was a schism in the medical profession of this region, which became divided into two parties; one of them adopting the theory and practice of John Brown, that life is a forced state, depending upon stimili, and hence that disease and death are to be constantly combated by stimulants. According to this theory, even certain fevers were to be treated with brandy, and in extreme cases, with a tincture of Spanish flies—internally administered! The other followed the theory of Cullen, who adopted the opposite practice of purgatives and depletion, more especially in fevers. A real frenzy ensued, and the medical profession, as well as Society, were involved in a sort of temporary insanity."
>
> S. G. GOODRICH, (PETER PARLEY)
>
> *Recollections of a Lifetime*

Paratyphoid Fever

The differentiation during the last five years of a continued fever resembling typhoid recalls the confusion in the early part of the last century between typhus and typhoid. As before, the newly-defined clinical entity appears a less severe affection, and the importance of the diagnosis is daily increasing. The variety of manifestations of typhoid and the large number of atypical cases have long been recognized, but no alternate condition has been known, and the custom has been in temperate climates, to designate all continued essential fevers as typhoid, in the absence of local pathognomonic signs of other diseases. Tuberculosis may at first prove perplexing, and the modern pandemic of influenza has introduced many questionable cases. The blood reactions, however, promised definite results, but irregularities in the results of these tests have been manifested, and to these may be attributed the discovery of the additional infectious fever, to which the name "paratyphoid" has been applied. Although this is a less severe and less fatal disease than typhoid, it must be understood that the term is not applied to light cases of typhoid, but represents a distinct infection *sui generis,* probably caused by organisms intermediate between the typhoid and the colon bacillus.

An important contribution to the "Pathological Anatomy of Paratyphoid Fever" is made by H. Gideon Wells and Lee O. Scott, in the first number of *The Journal of Infectious Diseases,* issued on

January 2, 1904, from the Memorial Institute for Infectious Diseases in Chicago. The authors report the four cases in the literature, upon which autopsies have been made, and add a case of their own. They show that paratyphoid infections are accompanied by changes quite different from those of typhoid. The most constant change, and the one most resembling typhoid, is the enlargement of the spleen. Hæmorrhages point to intestinal lesions, but these lesions are not those of typhoid, and in some cases are absent. The ulcerations of the bowel were much more like those of dysentery, and in the five cases there was practical absence of any alterations of Peyer's patches or of the solitary follicles. The mesenteric glands were also almost unaltered. These changes are, therefore, those of septicæmia, with splenic swelling, and occasional non-specific ulcerations in the intestine. The authors suggest that cases reported as typhoid without intestinal lesions may belong to this group. The absence of diarrhœa in the great majority of cases is one point of possible clinical differentiation from typhoid fever. The opportunities for exact diagnosis are not yet, however, available. For the present, in doubtful mild cases of typhoid, in which the Widal reactions are negative, agglutination tests with cultures of the *bacillus coli* or *bacillus paratyphosus* may be helpful.

Scientific Review

THE ETIOLOGY AND TRANSMISSION OF YELLOW FEVER

1. W. REED, J. CARROLL, A. AGRAMONTE and J. W. LAZEAR, *Philadelphia Medical Journal,* 1900, VI, 790.
2. W. REED, J. CARROLL, and A. AGRAMONTE, *Journal of the American Medical Association,* 1901, XXXVI, 431.
3. J. GUITERAS, *American Medicine,* 1901, II, 809.
4. W. REED and J. CARROLL, *American Medicine,* 1902, III, 301.
5. CARTER, *New Orleans Medical and Surgical Journal,* 1900, LII, 617; *Medical Record,* 1901, LIX, 933.
6. J. CARROLL, *Journal of the American Medical Association,* 1902, XXXIX, 117; 1903, XL, 1429; 1903, XLI, 1341; *Journal of the Association of Military Surgeons,* 1903, XIII, 177.

7. H. B. Parker, G. E. Beyer and O. L. Pothier,
Public Health and Marine Hospital Service, Yellow Fever Institute, Bulletin No. 13, 1903.
8. Parker,
Journal of the Association of Military Surgeons, 1903, XIII, 232.

The recent publication by Parker, Beyer and Pothier, in which the discovery is announced of the development of a sporozoan organism in mosquitoes that have filled themselves with the blood of yellow fever patients, and the closely following contradictory testimony of Carroll recall the many additions which have been made, during the past three or four years, to our knowledge of the principles underlying the transmission of yellow fever.

The first conclusive experimental proof that the mosquito acted as an intermediate infecting agent was offered by the Army Yellow Fever Commission in 1900-1901. Previously, in 1881, Finlay had given to the world his memorable theory of the transmission of yellow fever by the mosquito; but to Reed, Carroll, Lazear and Agramonte belong the credit of carrying out conclusive and convincing experimental observations and placing the theory on a scientific basis. These workers were led to the investigation of mosquito inoculations by the well known facts regarding the apparent non-contagiousness of the disease, the peculiar manner in which it is seen to pass from one house to another without the intercommunication of the inhabitants, and the numerous points of resemblance between yellow fever and malaria. After deciding that the B. icteroides (Sanarelli) could not explain these known facts, the mosquito theory was put to the test. The result is best stated by quoting from their report: "Yellow fever may be produced in non-immune persons either by the bite of the mosquito (*genus stegomyia*) that has previously been permitted to fill itself with the blood of a patient suffering from yellow fever during the first three days of the attack, or by the subcutaneous injection of a small quantity of blood (0.5 to two cubic centimetres) from the general circulation of such a patient during the active stage of the disease."

The specific agent, however, could not be found in either the infected person or in the mosquito. The unheated serum of a person infected experimentally by the mosquito when passed through a Berkefeld filter was still capable of producing the disease; if heated however, to fifty-five degrees centigrade for ten minutes the serum was inocuous. This led to the conclusion that the organism belongs to the group generally spoken of as ultramicroscopic. The mosquito which acts as the intermediate host described by Reed as *culex fasciata,* is more properly known by the name *Stegomyia fasciata* (Theobald). After the mosquito has bitten an infected person a period of thirteen days or more elapses before it is possible for it to infect another person. The period of incubation in persons bitten in experimental cases varies from forty-one hours to five days and seventeen hours.

The observations of the army board have been confirmed by Guiteras. These combined experiments give a series of twenty-four cases in which the disease has been transmitted from infected persons to non-immunes by the bite of the mosquito. Three of these cases terminated fatally. In association with this work a vast amount of evidence, demonstrating the non-communicability of yellow fever by means of fomites has accumulated. These observations are of great importance for they indicate that yellow fever is not a filth disease in the strict sense of the word. Filth is of danger only in that it allows a breeding place for mosquitoes. The experiments of the army board concerning the non-transmission of the disease by fomites are striking. Seven non-immunes slept for periods of twenty consecutive nights in a room garnished with articles soiled with black vomit, bloody fæcal discharges and urine from fatal and other cases, even sleeping between the sheets that had covered yellow fever patients. Each night and morning they unpacked and packed three or four large boxes containing these articles. The only precaution taken was against mosquitoes. In none of the seven did any ill effects result. Four of these seven non-immunes were later infected by blood injections or by infected mosquitoes. Similar experiments have been carried on by the Brazilian committee with like results. (Ref.: *Journal of the American Medical Association,* November 21, 1903, p. 1310). These observations with those of Havard, Gorgas and others have shown that yellow fever is a preventable disease, and when not excluded by quarantine, can readily be controlled and finally exterminated by measures directed against the mosquito alone. The result of such activity has been to rid Havana of yellow fever, after extreme cleanliness and energetic disinfection had proved a failure.

Carter has made some interesting observations which show that when yellow fever is introduced into a new territory, the interval (eleven to twenty-nine days, average eighteen), elapsing before the appearance of the secondary cases, corresponds to Reed's observation of the period (twelve to eighteen days) elapsing between inoculation of the mosquito and the appearance of the disease in the person bitten.

Much more might be said concerning the transmission of yellow fever by the mosquito. The latest communication is that of H. R. Carter to the American Public Health Commission (*Journal of the American Medical Associations,* May 21, 1903, p. 1292) concerning characteristics of the *stegomyia fasciata* which affect its rôle as a carrier of yellow fever. Some of the arguments for and against the theory of transmission by fomites may be seen in the paper by Challie (*Journal of the American Medical Association,* May 23, 1903, p. 1433) and the appended discussion.

Despite the activity along all lines of investigation concerning yellow fever it was not until July of this year that any definite communication concerning etiology was made. At this time, Parker, Beyer and Pothier constituting "Working Party No. 1," of the Yellow Fever Institute of the United States Public Health and Marine Hospital Service announced the discovery of a protozoan parasite, to which they gave the name *Myxococcidium stegomyiæ,* in mosquitoes which had bitten patients with yellow fever. These parasites were found with great regularity in section of mosquitoes stained by hæmatoxylin or Bismarck Brown. They appear first in the stomach, three days after feeding, as nucleated fusiform bodies three to four μ long and 1.5 to two μ broad. Later they pass through the stomach wall into the œsophageal diverticulum. Here they increase in size and become globular. The nucleus then undergoes fragmentation or multiple division. The resulting granules become larger, more sharply defined, and elongated, *i. e.,* spores. After becoming free of the albuminous material surrounding them, these bodies migrate to the anterior portion of the diverticulum, penetrate the salivary gland and are discharged when the insect feeds.

At the time, this communication appeared to be one of the most important contributions to the question of the etiology of yellow fever. But already (November 28th) Carroll has brought forth very strong evidence to show that the fusiform stage of the so-called parasite is but a yeast fungus, and in no way concerned in the transmission of yellow fever. This yeast fungus was found quite commonly in mosquitoes fed on over-ripe bananas and on bananas smeared with yeast cultures. Moreover in fifty mosquitoes which had bitten yellow fever patients but were afterwards fed exclusively on dried blood, water and sugar, the organisms were not found. While a final opinion can not yet be given, the observations of Carroll seem most conclusive, and the burden of the proof rests with "Working Party No. 1." The transmission of the disease, however, is the important thing, and of this we have the most complete knowledge. The determination of the etiological agent while a matter of scientific interest, will add but little to our present practical knowledge of the principles of transmission and the measures of prevention. R. M. PEARCE.

[Since the preparation of the above review the report of the French Yellow Fever Commission has appeared (*Annales de L'Institute Pasteur,* 1903, xvii, 665). This commission, consisting of Marchoux, Salimbeni and Simond working in Brazil under the scientific direction of the Pasteur Institute, have carried out a most complete series of observations and experiments. They confirm the work of Reed and Carroll concerning the transmission by the mosquito and the non-communicability by fomites Of interest in connection with the work of Parker, Beyer and Pothier is their statement that bacilli, fungi, yeasts and sporozoa normally inhabit the mosquito; but they found no evidence to indicate that these organisms had any etiologic relation to yellow fever.] R. M. P.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, DECEMBER, *1903*

Deaths

	1901	1902	1903
Consumption	27	14	11
Typhoid Fever	1	0	3
Scarlet Fever	0	0	0
Measles	0	0	0
Diphtheria and Croup	5	4	2
Grippe	0	1	1
Whooping-cough	0	2	0
Pneumonia	11	14	13
Broncho-pneumonia	4	5	3
Apoplexy	8	9	9
Bright's Disease	8	14	17
Cancer	13	9	10
Accidents and Violence	5	9	4
Under one year	10	18	10
Seventy years and over	22	29	33
Total deaths	138	139	142
Death rate	16.24	16.36	16.71

Deaths in Institutions

	1901	1902	1903
Albany City Hospital	10	12	16
Albany Orphan Asylum	3	0	0
Child's Hospital	0	1	1
County House	0	1	1
Home for Aged Men	0	1	1
Homeopathic Hospital	1	3	4
Home for the Friendless	0	0	1
House of Shelter	1	1	0
Little Sisters of the Poor	1	1	0
Public Places	1	0	5
St. Peter's Hospital	4	2	2

Marriages		62
Births		109
At term	103	
Still	4	
Premature	2	

It is interesting to note in connection with the deaths that there were but eleven deaths from consumption this year as against fourteen last year and twenty-seven the year before; two deaths from diphtheria as against four the year before and five during the corresponding month in the year 1901. There have been no deaths from whooping-cough measles or scarlet fever. The deaths from pneumonia and broncho-pneumonia are not as numerous as they were a year ago when an increase in deaths from these causes was rather to be expected. Taking all in all, the deaths from contagious diseases, which indicate the thoroughness of the work of the Department of Health, are extremely few in number, and the citizens of Albany can congratulate themselves on the continued healthful condition of the city.

WORK OF THE HEALTH PHYSICIANS

Total number of assignments made	70
Total number of calls made	386

INSPECTIONS

In the Bureau of Markets and Milk there were ninety-one inspections made, of which sixty were of markets, twenty of milk wagons, three of hide houses, five of commission houses, two of slaughter houses and one of pork packing houses. There were four tests made of milk.

In the Bureau of Sanitation there were thirty-six complaints made, of which three were of privies, three of closets, three of drains, twelve of plumbing, one of filthy premises, four of gas, one of chicken, one of pig, one of dump, five of smoke, two of odors, one unclassified. There were forty-five inspections made, of which thirty-two were of plumbing and thirteen sanitary. Fifteen re-inspections were made, fifteen notices were served to abate nuisances and four cases were referred to the Commissioner of Public Safety for action.

In the Bureau of Plumbing, Drainage and Ventilation there were 108 inspections made, of which sixty-three were of old buildings and forty-five of new buildings Seventeen iron drains laid were inspected, two connections with street sewer, two tile drains, one urinal, sixty-seven wash basins, twenty-five sinks, forty bath tubs, ten wash trays, forty-five tank closets. Forty-five permits were issued, of which thirty-six were of plumbing and nine for building purposes. Four plans were submitted, of which one was for an old building and three for new buildings. Eleven houses were tested on complaint, of which one was tested with the smoke test and ten with the peppermint test. Three water tests were made. Twenty-one houses were examined on complaint and twenty-seven re-examinations were made.

Bureau of Contagious Diseases

Cases Reported

	1901	1902	1903
Typhoid Fever	6	8	6
Scarlet Fever	2	9	7
Diphtheria and Croup	51	25	45
Chicken-pox	8	22	13
Measles	11	3	29
Whooping-cough	0	3	0
Consumption	2	1	0

Fumigations:
Houses.................... 41 Rooms.................... 113
Number of days quarantine for diphtheria:
Longest........ 48 Shortest....... 5 Average....... 16+
Number of days quarantine for scarlet fever:
Longest........ 45 Shortest....... 24 Average....... 32+

Antitoxin

Cases of diphtheria in which antitoxin was used	31
Cases in which antitoxin was not used	14
Deaths after the use of antitoxin	2

Deaths from Diphtheria

One was a male, age two years nine months, sick ten days, death caused by diphtheric paralysis; the other was a male four years old, sick three days, antitoxin was used on third day, death caused by membranous croup.

Bender Laboratory Report

Cultures for Diphtheria

Initial positive	Initial negative	Release positive	Release negative
31	40	35	29

Tubes spoiled 3
Total cultures 138

Tuberculosis

Initial positive	Initial negative
1	1

Cards have been printed and distributed to theatres and other public buildings calling attention to the ordinance prohibiting spitting in public places. A copy of the card is as follows:

"SPITTING

Upon the floor or any part of any street railroad car or other public conveyance or of any public building, hall or theatre, or in other public places in the City of Albany, is unlawful and forbidden.

"Violation of this ordinance is punishable upon conviction by a penalty of Ten Dollars ($10.00). JOSEPH D. CRAIG, M. D.,
Health Officer."

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Society was held in the Art Room of the Albany Institute and Historical Society, 176 State street, Albany, N. Y., on Wednesday evening, January 13, 1904. The meeting was called to order by the President, Dr. C. S. Merrill, at 8:40 P. M. This meeting was arranged by the Milk Committee of the Society, and, as the subject was of interest to the lay as well as medical members of the community, a general public invitation was extended. Two hundred and forty-seven persons attended this meeting, among whom were the following members of the Society: Drs. Babcock, Bartlett, Bingham, Blair, Boyd, Cook, Craig, Curtis, George, Goewey, Gutmann, Hinman, Hun, Jenkins, Laird, Lewi, Lipes, Lomax, MacFarlane, Mereness, Merrill, Nellis, Neuman, Papen, Pearce, Pease, Ryan, Shanks, Shaw, Skillicorn, Steenberg, Stillman, Sweet, A., Sweet, E., Theisen, Traver, Trego, Tucker, Ward, Washburn, Wiltse, Vander Veer, A. and Van Slyke.

In consideration of the public character of the meeting, the regular order of business was dispensed with.

The PRESIDENT said: "We have met here this evening to discuss the character of the milk supply of cities, and we are fortunate in having eminent professors with us who will instruct us on this subject. The first to speak to us will be Professor Pearson, of Cornell University."

Professor PEARSON spoke from the standpoint of the Dairyman.

(Dr. Pearson's paper will appear in full in the ANNALS.)

At the close of Professor Pearson's paper the President introduced Dr. Charles Harrington, Professor of Hygiene, Harvard University, who has been actively engaged in improving the milk supply of the city of Boston for over twenty years.

(Dr. Harrington's paper will appear in full in the ANNALS.)

The President then introduced the next speaker, Dr. Rowland G. Freeman, Professor of Children's Diseases in the University-Bellevue Medical School, New York City, and a member of the Milk Commission of the Medical Society of the County of New York.

Dr. Freeman's paper was illustrated by fifty-six stereopticon views.

(Dr. Freeman's paper will appear in full in the ANNALS.)

At the close of Dr. Freeman's paper the following gentlemen took part in the discussion: Hon. G. L. Flanders, Deputy Commissioner of Agriculture; Dr. J. D. Craig, Health Officer of the City of Albany; Dr. Albert Vander Veer and Dr. D. H. Cook. This discussion will be published in full with the papers.

Dr. VANDER VEER moved that the thanks of the Society be tendered to Professors Pearson, Harrington and Freeman for their interesting papers and for their presence at the meeting. Dr. Ward seconded the motion, which was carried.

On motion, the meeting adjourned.

HENRY L. K. SHAW, *Secretary.*

CYRUS S. MERRILL, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR DECEMBER, 1903.—Number of new cases, seventy-six. *Classification of cases:* District cases reported by health physicians, nine; charity cases reported by other physicians, thirty-one; people of limited means, thirty-six; old cases still under treatment, twenty-four; total number of patients under nursing care, one hundred. *Classification of diseases (new cases):* Medical, twenty; surgical, one; gynæcological, four; obstetrical, twenty-six mothers and twenty-four infants under professional care; dental, one; transferred to hospitals, four; deaths, three.

Special Obstetrical Department: All cases under care of two attending obstetricians. Medical students in attendance, eight; Guild nurses, six; cases, six. Number of visits by attending obstetricians, six; by the medical students, forty-one; by Guild nurses, eighty-one; total number of visits for this department, 128.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, 902; for professional supervision of convalescents, 218; total for month, 1,120. Cases were reported to the Guild by three health physicians, by twenty-four other physicians and one dentist.

ANNUAL DINNER OF THE NEW YORK ALUMNI ASSOCIATION.—The Annual Dinner of the Alumni of the Albany Medical College residing in and around New York, took place on Thursday evening, January 21, 1904, at 7:30 P. M., at the Hotel Manhattan, New York City. Prominent alumni of our Alma Mater were present from not only New York City but from many points at considerable distance. Special pains were taken to make this reunion memorable in the history of the Association, and all who were present felt amply repaid for attending.

CHARITY BALL IN AID OF HOSPITALS.—On New Year's night, under the auspices of the Tenth Battalion, N. G. N. Y., a charity ball was given in the State Armory for the purpose of raising funds to be applied on the building of the new Homœopathic Hospital and for much needed necessary improvements at the Albany Hospital. The affair was a very brilliant one and thoroughly enjoyable in every way, netting the two institutions a very tidy sum.

American Electro-Therapeutic Association.—We are in receipt of a descriptive pamphlet and membership list of the American Electro-Therapeutic Association, revised to date. This Association, having its headquarters at New Haven, Conn., has been in existence for fourteen years and will hold its next annual convention at St. Louis, Mo., September 13 to 16, 1904. A candidate for election to ordinary fellowship in this Association must be a graduate of a recognized medical college and a member in good standing of his regular county and State medical societies. He must fill out and sign a regular application blank which must receive the indorsement of two members of the Association. The annual dues are $5.00.

Civil Service Examinations for United States Medical Service.—The United States Civil Service Commission announces that on January 27 and 28, 1904, an examination will be held in the cities enumerated below for the positions of physician in the Philippine service at salaries ranging from $1,200 to $1,800 per annum. Examinations will also be held in the same cities on February 17 and 18, 1904, to fill eighteen vacancies in the positions of male medical clerk in the Bureau of Pensions, at $900 per annum. Applicants must be graduates of recognized medical schools between the ages of twenty-five and thirty years. All of the above examinations will be held in Albany, Buffalo, Ithaca, New York, Plattsburgh, Syracuse and Utica.

Transmission of Syphilis as a Penal Offense.—The recent conviction and sentence to imprisonment for five months by the authorities of Munich of a man who knowingly infected a woman with syphilis has aroused very favorable comment in our medical press. The judgment of the court was based on the ground that a serious injury had been inflicted on the complainant. Such deliberate infliction of venereal disease to another certainly merits severe punishment. However, in adjusting the guilt of parties to such crimes it must be borne in mind that a man can seldom, if ever, be ignorant of the fact that he is suffering from venereal disease, while it is comparatively easy for a woman to have one or several of the gravest of them without the knowledge of their existence. The effort to stamp out the scourge which threatens our civilization would be very materially forwarded if special statutes could be enacted to punish practices of this kind which are at present not within the reach of the common law.

The March of Death Halted.—One of the most striking evidences of the efficiency of the medical department of the army in the Philippines appears in the record of its work in treating dysentery. As in other wars, this disease has been a grave peril in the Philippines, where it has caused many deaths and hundreds of cases of total disability among the American troops. Yet, in spite of climate and other conditions which render the disease exceptionally virulent and deadly, the medical department has almost completely eradicated it. This extraordinary result has been accomplished through the vigilant enforcement of sanitary measures requiring that all drinking water shall be boiled, that men shall wash their hands before handling articles of food, and that the utmost care shall be taken to prevent the infection of towels and table linen. Because of this wise precautionary policy, dysentery has almost disappeared from the army stations in the archipelago, and results almost as marked have been accomplished in treating typhoid fever. The record is one which has never been surpassed by the medical authorities of an army of white men in a tropical campaign.—*The Army and Navy Journal.*

Expiating Malaria in the Soudan.—A cable despatch to ***The Sun*** quotes from an interesting report by Surgeon-Major Penton, chief medical officer of the British forces in the Soudan, describing the results of the campaign against mosquitos in that region. Ismailia, he says, is now practically free of mosquitos and nets may almost be dispensed with. Two swamps northeast of the town and others on the south have been filled up with sand, while a third large marsh to the north has been well drained. Workmen are still filling up the pools and mowing the coarse undergrowth. At first they were worried in the evenings by the swarms of mosquitos, but lately there have been scarcely any. Statistics in regard to the health of Ismailia show that from January 1 to June 30, 1903, there were only three cases of malaria in the hospitals, as compared with fifty-two in the corresponding period of 1902. While throughout Ismailia there were 569 cases from January 1 to May 30, 1902, the average for the same period in 1903 was only seventy-two. Many of these cases were probably relapses from previous cases. Major Penton suggests that when the present operations against mosquitos are completed malarial fever will practically have disappeared.—*Medical Record.*

Incomplete Chest Examinations in Office Practice.—Dr. John F. McGarrahan, of Cohoes, N. Y. (A. M. C., 1894), in the *Medical Council* of December, 1903, calls attention to the frequent incomplete physical examinations of the chest in office practice, calling especial attention to the necessity of requiring the removal of corsets in female patients. The doctor cites two cases where lack of care was the cause of very grave mistakes in diagnosis. In both cases there was a pleuritic effusion, which in the first case gave rise to a diagnosis of consumption and in the second to heart disease. Subsequent examination and proper treatment promptly cured both cases.

Personal.—Dr. John F. Lockwood (A. M. C. '81), has given up the practice of medicine and is engaged in manufacturing tents, etc., in Kansas City, Mo.

—Dr. Walter G. Murphy (A. M. C. 1890), is now practicing at 75 Pratt street, Hartford, Conn.

—Dr. Peter J. Fagen (A. M. C. '92), is residing and practicing at 50 East 98th street, New York City.

—Dr. Herbert N. Tanner (A. M. C. '95), has removed to East Aurora, N. Y.

—Dr. George B. Stanwix (A. M. C. '98), is in special practice at 260 Washington street, Binghamton, N. Y. He has recently been appointed Attending Specialist in Diseases of the Ear, Nose and Throat, at the Binghamton State Hospital.

—Dr. Michael F. Wansbury (A. M. C. '99), has been recently appointed a District Physician of Troy at a salary of $400 a year.

—Dr. Thomas H. Cunningham (A. M. C. 1900), has taken up private practice and is located at 17 Oak street, Glens Falls, N. Y.

—Dr. Arthur Holding (A. M. C. '01), of 125 W. 58th street, New York City, has been appointed director of the Roentgen Ray Laboratory, Cornell University Medical College, and Lecturer in Electro-Therapeutics and Radiography, New York Polyclinic Hospital and College.

—Dr. Michael J. Thornton (A. M. C. '01), has been appointed Assistant Physician at Manhattan State Hospital, Central Islip, Long Island.

—Dr. Burdett Hoyt (A. M. C. '03), is practicing at 704 Albany street, Schenectady, N. Y.

Deaths.—Dr. Edward A. Everett (A. M. C. '56), died recently at Burlington, Vt., aged seventy-two years.

—Dr. Henry A. Crary (A. M. C. '66), died at Knox, N. Y., December 25, 1903.

—Dr. Alfred H. Brundage (A. M. C. '56), died at Xenia, Ohio, December 10 ,1903, aged sixty-eight years.

IN MEMORIAM

Alfred H. Brundage, M. D.

For nearly forty years Dr. Brundage has practiced his profession in Xenia, Ohio, at which place he died on Thursday morning, December 10, 1903. He was born in Susquehanna county, Pennsylvania, and his boyhood and youth were passed in that State. He chose medicine as a profession, and graduated from the Albany Medical College with the class of '56. In 1857 he began practice in Delaware, Ohio, and was there united in marriage to Miss Frances H. Thrall on New Year's Day, 1861. Seven months after his marriage he volunteered for service in the Civil War and was commissioned Assistant Surgeon in the 32nd O. V. I., and in less than six months was made Surgeon of the regiment. A little later, upon the recommendation of the Surgeon-General of Ohio, though not yet thirty years of age, he was promoted to the responsible position of Chief Surgeon of the Division. The medical records of the army speak highly of his skill as a surgeon, and his army life was one of heroism and sacrifice until September, 1864. Since that time Dr. Brundage has been in practice in Xenia, Ohio.

Dr. Brundage's illness was of brief duration, and after about thirty-six hours' illness his physicians were compelled to stand aside before the oncoming of death. All agree that uremic poisoning was the immediate cause of death.

Henry Augustine Crary, M. D.

Dr. Henry Augustine Crary, of Knox, Albany county, N. Y., died on December 25, 1903, of locomotor ataxia, from which he had been a sufferer for several years, during the last five having been confined to his room and the last two to his bed.

Dr. Crary was born at Knox, the son of John Gallup Crary and Mary Spawn Crary, both natives of Albany county, He was of Scotch and English origin, his ancestors coming to America in the year 1600, some of whom settled in Connecticut and New York. His grandfather Crary came to Knox while a boy, late in 1700. They were a long-lived race, many of them living to eighty and ninety years, and in one case to the unusual age of 107 years. Dr. Crary's preparatory education was obtained at the Knoxville Academy and Union College, after which he studied medicine under the preceptorship of Dr. Sigsbee, of Knox, and later he became a student of Dr. Freeman, of Albany, and was graduated from the Albany Medical College, December 22, 1866.

While yet a student in Union College Dr. Crary enlisted in Company G. 177th Regiment, N. Y. State Volunteers, and was made sergeant of his company. He served under Capt. L. M. Filkins and went with his regiment to New Orleans and was present at the siege of Port Hudson, after which a protracted illness necessitated his return north. He was honorably discharged and mustered out of service on the tenth day of September, 1863.

After his graduation he opened an office at 41 Clinton avenue, Albany, where he practiced for a time, being made Ward Physician. Later he removed to Closter, N. J., where he practiced until the spring of 1876, when he returned to Albany, occupying the house of Dr. Swinburne in Eagle street, and the following spring he returned to Closter, N. J., where he continued to practice until 1892. On account of failing health he then removed to Knox, at which place he continued to practice until obliged to abandon work on account of the illness which gradually increased until it resulted in his death.

On the second day of June, 1870, Dr. Crary married Frances Ramsey, daughter of Hon. Joseph Ramsey, of Albany. Three children were born to them, two of whom, Henry A. Crary, Jr., and Mrs. Harry Westervelt, of Nyack, survive him. Mrs. Crary died some years ago.

Fraternally Dr. Crary was a member of the G. A. R. and the Albany Burgesses Corps.

It was my pleasure to know Dr. Crary well. He was a man of broad and liberal mind, generous in his impulses and true to his friends. By nature he was largely endowed with mental faculties of a superior order and a judgment quick to grasp the situation in emergencies and the ability to execute. Possessing these qualifications he necessarily favorably impressed those with whom he came in contact, and his friendships among the profession and the laity alike were equally strong, and consequently all sincerely regret that his life's labors are closed and we shall meet and greet him no more until that time shall come to us as it came to him, when life's fitful dream is o'er.

Jesse Crounse.

Book Reviews

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College; Attending Obstetrician to the New York Maternity Hospital. With 1,221 Illustrations, many of which are printed in colors. Pages xvi, 1,111. Philadelphia: P. Blackiston's Son & Co. 1903.

In this book, an entirely new and complete work on the practice of obstetrics, the author has embodied certain ideas of his own as to classification of the subject matter, which would seem to facilitate the use of the work by those for whom it is intended. These ideas have been developed gradually during many years of teaching in obstetrics, and the classification employed follows mainly the order in which the various subdivisions have been taught.

The book differs from many similar works in that the customary opening section on anatomy has been omitted, and instead the anatomy has been given in the different sections to whatever extent is needful for a proper understanding of the particular portion of the subject under discussion.

An opening section on the Physiology of the Female Genital Organs is followed by eight other parts, which divide themselves readily into pairs, treating of Physiological and Pathological Pregnancy, Physiological and Pathological Labor, Physiological and Pathological Puerperium, Physiology and Pathology of the Newly Born, and a final part dealing with Obstetric Surgery.

The subject of Pelvimetry is fully treated and illustrated in the part devoted to Physiological Pregnancy, under the heading Examination of Pregnancy, and the importance of placing greater dependence upon the information thus obtainable, is emphasized. The desirability, necessity almost, of acquiring skill in determining the presentation and position of the fetus by means of inspection and palpation of the abdominal wall is urged upon the student and the method and manner of making such examination is clearly and carefully described.

Under the head of Pathological Pregnancy are included accounts of all diseased conditions occurring during pregnancy, whether originating on the part of the embryo, the fetus, the uterus, or from local or general influences on the part of the mother.

The subsection devoted to the subject of Monstrosities is very full, contains numerous illustrations, and is much more complete than is usually found in works devoted to obstetrics.

The part devoted to Physiological Labor includes all that pertains to normal labor (meaning thereby vertex presentations), including the passage ways, the fetus, and the expelling forces, the stages and mechanism of labor and its management.

Under Pathological Labor are included all labors due to abnormal conditions whether fetal or maternal in their nature.

The various phenomena arising during the Physiological and Pathological Puerperium are described, and appropriate treatment and management of the same given in the parts devoted to each respectively.

The last part, devoted to Obstetric Surgery, containing 170 pages, includes a careful account of the various procedures which may be needful at one time or another, and directions for their performance.

Sample blanks and directions are given in an appendix for a careful recording of obstetric histories.

Too great commendation cannot be given for the excellence of the typography, which is at all times clear and easy to read, and for the numerous excellent illustrations, nearly all of which are new and many of which are from photographs. The illustrations are exceptionally clear, and of themselves in many instances convey the information far more quickly than the perusal of any text possibly could.

An unusually full index, comprising forty-six double-column pages, completes the satisfaction and pleasure of using this admirable text-book for both student and practitioner. LYMAN ASA JONES.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A. M., M. D., Philadelphia, U. S. A. With the collaboration of Wm. Osler, M. D., Baltimore; John H. Musser, M. D., Philadelphia; Jas. Stewart, M. D., Montreal; J. B. Murphy, M. D., Chicago; A. McPhedran, M. D., Toronto; Thos. M. Rotch, M. D., Boston; John G. Clark, M. D., Philadelphia; James W. Walsh, M. D., New York; J. W. Ballantyne, M. D., Edingurgh; John Harold, M. D., London; Edmund Landolt, M. D., Paris; Richard Kretz, M. D., Vienna. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels, and Carlsbad. Volume III, Thirteenth Series, 1903. Philadelphia: J. B. Lippincott Company, 1903.

About one-third of the volume consists of six articles on diseases of the gall-bladder and gall-ducts. In "Some Medical Aspects of the Diseases of the Gall-Bladder and Gall-Ducts," Dr. John H. Musser contributes a condensed article containing many valuable points in diagnosis and a summary of some recent studies in gastric and urinary analysis in diseases of the liver. Dr. R. D. Rudolph writes on "The Causation, Symptoms, and Diagnosis of Gall-stones," and makes a thorough analysis of the causes of gall-stones, including the presence of a nucleus which may be formed by a clump of bacteria. In "The Diagnosis and Medical Treatment of Cholelithiasis and Cholecystitis," Dr. Charles G. Stocton does not advise delay in cases needing surgical intervention, but says that "we are not yet in a position to demand a cholecystotomy as soon as a diagnosis of gall-stone has been made." As the lithæmic state predisposes to attacks of gall-stone colic, he believes that medical treatment can do much toward preventing them. In Dr. F. Parkes Weber's article on "Biliary Cirrhosis of the Liver, with and without Cholelithiasis," he reports a number of cases and expresses the belief that in both varieties the principal causes of the cirrhosis and the obstruction to the flow of bile and the cholangitis. He also believes that the enlargement of the spleen is secondary to the liver disease, due partly to congestion and partly to toxæmia. In "The Value of and Indications for Surgical Intervention in Cholelithiasis," Dr. F. Lejars states that the condition in caused by infection in persons with a constitutional predisposition. Secondary infection is likely to occur when a gall-stone prevents the free flow of bile, for it is mainly the stream of bile which prevents infection of the ducts by the intestinal bacteria. He therefore advocates an early operation while the disease is still in the gall-bladder stage. In "The Surgical and Post-operative Treatment of Chronic Gall-stone Disease," Dr. John B. Deaver describes the operations and gives details as to post-operative treatment, which are of great importance.

Among the articles on treatment is one by Dr. Albert Robin on "The Medical Treatment of Gastric Cancer," in which he gives in detail his methods of treating cases which are seen too late for pylorectomy. His patients often gain weight and the average length of life is greater than after the operation of gastro-enterostomy. In an article on "The Serum Treatment of Typhoid Fever," Dr. A. Chantemesse states that in a period of twenty months the average death rate from typhoid fever in all the Paris hospitals was 19.3 per cent., while, during the same time, 186 cases were treated in his wards by serum and baths with a death rate of 3.7 per cent. The use of serum does not lessen the tendency to perforation unless it is begun early and experiments on animals show that it is of greater value when given early.

In the section on medicine Dr. Charles F. Craig writes on "Malarial Infections: their Parasitology, Symptomatology, Diagnosis, and Treatment." He gives a condensed account of the life history of the tertian, quartan and estivo-autumnal parasites in the human and mosquito cycles. In giving the symptoms of the disease he classes it according to the variety of parasite, but from a clinical point of view divides the cases due to the estivo-autumnal form into the tertian, quartan, pernicious and latent varieties. The typical temperature chart of the tertian estivo-autumnal type is very different from that of the tertian parasite. Any variety of the plasnodium may cause the pernicious form of the disease, but the estivo-autumnal variety most frequently does so. In a paper on "Clinical Types of Pneumonia, with Special Reference to Aberrant Forms," Dr. R. Murray Leslie expresses the belief that migratory pneumonia may be a form of septic broncho-pneumonia. He reports three cases of relapses in lobar pneumonia, in one of which the condition was verified by an autopsy. He differs from Dr. Osler in believing that the decolorized heart clot is formed before the death agony and thinks that some of the value of ammonium carbonate is due to its anti-coagulating effect. In an article on "Clinical Evidence of Myocardial Damage in Rheumatic Fever." Dr. F. J. Poynton also presents pathological proof of damaged heart muscle. He agrees with Sir William Gull that the great enlargement of the area of cardiac dullness in rheumatic pericarditis is usually due to dilatation rather than to fluid, and points out the danger of aspiration in such cases. He believes that in rheumatic fever the heart muscles may be more seriously damaged than the valves or pericardium and reports cases in which the symptoms accord with this view. R. G. C.

Nose and Throat Work for the General Practitioner. By George L. Richards, M. D., Fall River, Mass. Published by the *International Journal of Surgery Co.,* 100 William street, New York. Price $2, cloth.

The little book of 330 pages, by this well known author, fills rather a unique position in nose and throat literature. In the introduction the author states that he has endeavored to describe the symptoms and treatment of the more common affections of the throat and nose, in clear, concise language, and with an absence of unnecessary detail. He has certainly succeeded in accomplishing this most admirably, and this very fact makes the book valuable to general practitioners, who may not have had much experience in nose and throat work, and to students, particularly those beginning the study of this speciality. Another excellent feature of the book is the absence of all needless discussion of mooted and difficult questions, which are only of interest to specialists, and would only serve to confuse a student.

The book is so good, that it is difficult to select any particular part for special commendation. The reviewer cannot however, let the opportunity pass, without reference to the chapter devoted to the discussion of adenoid growths. The author's method of operating under ether, in the upright position, with the head well forward, is certainly the most rational one, because as he rightly states, every step of the operation can be seen, and hemorrhage if it occurs, can be more readily controlled. The book is nicely illustrated. It can be most heartily recommended to the general practitioner or student. C. F. T.

The Practical Care of the Baby. By Theron Wendell Kilmer, M. D., Associate Professor of Diseases of Children in the New York School of Clinical Medicine. $1.00, delivered. Philadelphia: F. A. Davis Company.

This essentially practical book of 150 pages is written for the mother and nurse, whom the author, believing that most books give them too great credit for knowing the little "ins and outs," regards as knowing absolutely nothing about the care of the baby. The book explains in a concise, clear manner how to carry out details. The illustrations admirably demonstrate the clothing and handling of an infant, as well as the essential articles special to his care and nutrition. The paragraphs on feeding show how the modern methods of nourishing a child from birth to the sixth year may be successfully and easily carried out in the home. The practical side of milk modification is concisely set forth. The five formulæ are the same as those which appear in Holt's little book. A small but complete pasteurizer is demonstrated. The remaining subjects are treated equally well. The physician will find this book one that appeals to him for its eminently practical value in the up-to-date management of the baby in the home.

W. E. M., JR.

Current Medical Literature

SURGERY

Edited by A. Vander Veer, M. D.

The Indications for Operative Procedure in Carcinoma of the Rectum. (*Indikation der operativen Eingriffe beim Rektum-karzinom.*)

O. WITZEL. *Münchener medicinische Wochenschrift, No. 10, March, 1903.*

The writer states that he has entirely given up resection of the rectum because of the fistulæ which almost invariably follow that operation. Furthermore, attempts to preserve the action of the sphincter, especially in men, are usually unsatisfactory, and as a rule no better than may be obtained by establishing an artificial anus in the gluteal region. Part of this disturbance of the action of the sphincter is the result of the disturbance of the nerves, incident to resection of the rectum.

The most important factor to be considered in the radical treatment of carcinoma of the rectum is the avoidance of hemorrhage and sepsis, to which such a large number of cases of carcinoma of the rectum fall victims after operation. In seventeen instances in which the writer has performed his operation there have been no deaths from either of these causes.

The operation is divided into five acts: (I) extirpation of the coxccyx and presacral loosening of the rectum; (II) loosening of the ampullar portion of the rectum and opening of the peritoneum; (III) loosening of the anal portion of the rectum after ligature of the inferior hemorrhoidal arteries; (IV) ligature of the middle and superior hemorrhoidal arteries and loosening of the rectum as far as the sigmoid flexure; (V) amputation of the rectum, formation of a gluteal anus.

The writer uses the rather paradoxical principle that for a small carcinoma an extensive or radical operation should be performed, while for a large carcinoma a small or palliative operation should be performed. Only about twenty per cent. of the cases which present at his clinic are considered suitable for radical operation. According to his view only those carcinomata of the rectum are suitable for radical operation which have not extended beyond the fascia propria of the rectum. Cases in which the prostate, bladder or contigous structures are involved are not suitable for extirpation, nor are those cases in which there is evidence of extensive metastases to the glands. He urges particularly the most careful and painstaking examination, not only of the rectum, but of the other viscera, before operation is undertaken, and states that one reason why so many cases are inoperable is because of the reluctance of the general medical man to make a rectal examination. One of the advantages of his operation is that if the case proves to be too extensive to offer any hope of a cure the operation may be terminated at almost any stage and leave the patient in practically no worse condition than at the beginning. In certain cases he advises a preliminary laparotomy to determine positively whether the disease has extended beyond the limits of successful removal. In cases where a radical operation cannot be performed the writer advises the use of an artificial anus in the left inguinal region, or, as he has latterly practiced, by bringing the bowel out of the peritoneal cavity and passing it under the sartorius muscle just below its attachment to the anterior superior spine. He urges the importance of completely severing the bowel, in order that all the fecal matter may escape through the artificial anus, and also in order that irrigation of the segment of the bowel below the anus may be continued through the distal severed end. The advantage of the colostomy under the sartorius is that the escape of the fecal matter can be more satisfactorily controlled than in any other way.

Fracture of a Portion of the Greater Tuberosity of the Humerus. (De la Fracture Parcellaire de la Grosse Tuberosite de l'Humerus.)

O. Jacob. *Gazette des Hopitaux, No. 12, January 29, 1903.*

One not infrequently observes after traumatism of the shoulder and with an absence of any secondary infection, certain persistent pains of a more or less marked character associated with considerable loss of function, which is usually assumed to be a result of a traumatic arthritis or periarthritis. This arthritis can be best explained by a fracture, but there are apparently many instances in which clinically it is impossible to demonstrate a fracture, and in which it has hitherto been assumed that none existed. The writer calls attention to the articles by Tuffier and Forget, in 1900 and 1901, in which they stated that these so-called cases of periarthritis of the shoulder were really due to an unrecognized fracture of the greater tuberosity. Many of these conditions occur after comparatively slight accidents.

The writer reports a series of seven cases, all of which present the same general history and symptoms, namely, a fall associated with more or less an injury to the shoulder, following which it was impossible to clinically demonstrate any fracture or dislocation. There was, however, more or less complete loss of function of the arm. The condition was invariably regarded as quite simple and the prognosis very favorable. As a rule, after the lapse of a few weeks there was still marked disability of the arm, but no evident deformity. There was some atrophy of the deltoid and usually some tenderness of the groove between the insertions of the deltoid and pectoral muscles, as well as over the greater tuberosity just below the acromion. All the movements of the arm were limited, abduction, most markedly so, and this movement also caused marked pain. Careful X-ray examinations of these cases show that in every instance there was a fracture of a portion of the greater tuberosity, as a result of which there was more or less disturbance of the contour of the articular surface and naturally an interference with the function of the arm. The writer in conclusion urges the necessity of the use of the X-ray in all cases of contusion of the shoulder in which the symptoms do not speedily disappear, for only in this way can a positive diagnosis of the condition be made.

There are two facts, however, which should make one suspicious of the existence of a fracture of this character: first, a fall in which one strikes directly upon the shoulder, and secondly, the existence of an especially tender point upon the great tuberosity of the humerus, or just below the acromion process. If in addition to these two signs there is some ecchymosis upon the external surface of the shoulder one can affirm fairly certainly that a fracture exists.

MEDICINE

Edited by Samuel B. Ward, M. D., and Hermon C. Gordinier, M. D.

An Inquiry into the Relations of Leukaemia and Tuberculosis.

M. I. Susman. *Practitioner, October, 1903.*

The author emphasises the rarity of the association of tuberculosis and leukæmia and mentions the fact that in nearly all of the recognied text-books in the English language there is no mention at all of it. He was able to collect from the literature twenty-five cases of leukæmia associated with tuberculosis. Ten of this number were mentioned by Hirschfeld and Tobias in their paper in February, 1902. He points out the necessity of being very cautious about diagnosing the presence of tubercle by the microscopic appearance alone. Gowers, in his monograph of leukæmia, says, "that phthisis is rare, but the appearances in the lungs in a few instances have been that of tubercle, and in a few cases, tubercles have been found. On the other hand, extravasations of blood into the lungs are common and they may undergo caseation and closely simulate a tubercular process. Cavities may result from lymphoid infiltrations." The author examined the postmortem records of St. George's, Westminster, Middlesex, St. Thomas', and St. Bartholomew's hospitals from January, 1890, to December, 1901, and found forty-one necropsies on leukæmia and only one instance with evidence of tuberculosis. From his exhaustive study, he believes that a fair average would be in every one hundred postmortems, two and four-tenths deaths from leukæmia complicated with tuberculosis. It is interesting to note that in twenty-one of the twenty-five cases of leukæmia complicated with tuberculosis mentioned, eighteen were males and three were females. It is a well known fact that leukæmia affects males more often than females in about the proportion of two to one.

With regard to age, seventeen cases were between eighteen and fifty years, two under eighteen, and two over fifty years. The youngest was nine years of age and the oldest fifty-eight years. In five cases the leukæmia was definitely, while in two probably of the splenomedullary type. In seventeen cases the leukæmia was of the lymphatic type.

The twenty-five cases of leukæmia and tuberculosis were associated as follows: (1) the tubercle was old and obsolete, the advent of leukæmia not affecting it; (2) the tubercle was old and latent but the advent of leukæmia sets it aflame again; (3) the tubercular infection occurs during the progress of the leukæmia disorder, owing to the lessened resistance of the patient.

Sixteen of the author's cases belong to the second class, five to the third, and two to the first. The most noticeable point in reference to the blood change in these combined cases was, as the tubercular process advanced, the leukæmic character of the blood tended to be modified or even lost. The point most often noted was a diminution in the number of leucocytes. This was shown in every case. Weil, after studying the effect of numerous intercurrent affections on leukæmia, came to the following conclusion. In spleno-medullary leukæmia, there is as a result of an intercurrent affection a diminution in the number of leucocytes and a disappearance more or less of the mononuclear forms which are replaced by the polymorphonuclear forms. Others have noticed a diminution in the size of the spleen and lymph glands as the tuberculosis advances. It is interesting, in this connection, to note that Henck and Beitzke used injections of tuberculin and after each injection there was a fall in the number of leucocytes but no permanent improvement followed. In one case, antistreptococcic serum was used, producing a distinct fall of the leucocytes but enough time had not elapsed to judge whether the result will be permanent. The author believes the rarity of tuberculosis in leukæmia is due to the very marked mononuclear leucocytosis which protects the economy by increasing the quantity of nucleo-albumen in the body and by increasing the phagocytic action of the blood, both of which conditions exist in leukæmia. Buchner found that the leucocytes gave rise to certain substances rich in nucleo-albumen to which he gave the name of alexines. The alexines or the serum containing them have marked bactericidal power.

On the So-Called Stokes-Adams Disease, Slow Pulse with Syncopal Attacks, Etc.

WILLIAM OSLER. *The Lancet, August 22, 1903.*

Osler defines the Stokes-Adams syndrome (1) as a condition, characterized by a profound disturbance in the automatic mechanism of the heart, true bradycardia, hemisystole, and allorhythmia; (2) with nervous symptoms, vertigo, syncope, pseudoapoplexy and epileptiform attacks; (3) secondary symptoms, Cheyne-Stokes breathing, cardiac asthma, angina pectoris and the vaso-motor accompaniment of profound heart shock. The first cases of this disease were described by Stokes and Adams and later by Charcot, Huchard in France, and His, Hoffman and Luce in Germany and by Prentiss, Edes and Osler in America. Osler describes three varieties: (1) a post febrile group following the acute infections, as typhoid, diphtheria, pneumonia, scarlet fever or rheumatism; (2) a neurotic group with coarse lesions of the nervous system, as pressure on the medulla after injury, narrowing of the vertebral canal, and tumors pressing on the vagi,—a case of Edinger's was associated with an absence of the right cerebellar hemisphere and a varix close to the nucleus accessorius; (3) an arterio-sclerotic group,—most of the cases fall into this group and are characterized by marked changes in the circulatory system.

Osler reports twelve cases of this interesting diseaase, all in men. Three were above seventy-six years of age, six were between fifty and seventy years of age. The youngest, thirty-five years old, followed a streptococcus infection. One was forty and the other was forty-five years of age. The symptoms of the disease are very striking, consisting of true and false bradycardia, temporary cardiac arrest, vaso-motor changes, syncope, pseudo-apoplexy and epileptiform seizures with an occasional attack of acute œdema of the lungs.

True bradycardia may be permanent or may occur only during or after the paroxysm. The pulse beat has been reduced to twelve per minute. In one case, just prior to a convulsive attack, Dr. Osler counted intervals of twenty to thirty and thirty-five seconds in which there was no heart beat to be seen, felt or heard. The pulse is usually strong and regular. The infrequency in true bradycardia is probably due to prolongation of the diastole, the systole being sharp and quick.

False bradycardia.—Stokes observed in his cases that the pulse rate and the heart rate were not the same and that there were semi-beats of the heart. Osler observed this condition in three of his cases. There may be no evidence of this at the radials or in the carotids, where the pulsations may be of equal size and without the slightest evidence of arrthymia, even the sphygmographic tracings may not show the interpolated beats. They may sometimes be seen or felt at the apex or distinctly heard. A pulse of forty at the wrist may be accompanied by eighty heart beats. On one occasion with a pulse rate of twelve, the heart beats were one hundred.

Stokes noted in his patient a remarkable pulsation of the right jugular vein, which was more than double the rate of the ventricular contractions, this has been observed by many others. It is due according to Gaskell, to what he calls a definite "heart block" or independent auricular systole, without corresponding ventricular contraction. Temporary cardiac arrest is not the same. Osler states that, under such circumstances, to wait thirty-five seconds, watch in hand, without a heart beat seems like the final "count out," but this case, after scores of such attacks, recovered sufficiently to go to his home. Vasomotor changes as shown by pallor, sweating, vomiting and marked paræsthesiæ, are rather frequent.

Two groups of bradycardia exist, one associated with lesions in the heart itself, and the other with disturbances in the nervous system, organic or functional. The exact causative factor in the production of these peculiar attacks is not known. It would seem that the vertigo and syncopal attacks might be due to transient anæmia of the nerve centres, the result of local changes in the blood vessels of the medulla, and as Osler explicitly states, the cerebral features may be brought in to line with recurring attacks of transient aphasia, with or without loss of consciousness, of monoplegia and hemiplegia which are not uncommon in advanced arterio-sclerosis. In all cases of this disease, the prognosis is bad. A few examples with recovery exist among young persons. The disease may last for many years. In one of the cases bradycardia existed for thirty years. When the severe nervous symptoms have begun, little prospect of recovery exists. Seven of the cases had died. Sudden death is common and occurred in six of the series.

NEUROLOGY

Edited by Henry Hun, M. D.

Acute Poliomyelitis and Encephalitis.

FREDERICK E. BATTEN. *The Lancet, December 20, 1902.*

The author divides this subject into three main classes, viz.: (1) acute polio-encephalitis superior (2) acute polio-encephalitis inferior; (3) acute polio-myelitis anterior.

Under the first, come those cases in which the frontal, the motor and occipital regions of the cortex are affected; under the second those cases in which the nuclei of the cranial nerves are affected, and under the third, belong the cases in which the grey matter of the anterior horns, below the medulla, are involved.

General symptoms. The disease is more frequent in summer. Its onset is sudden, attended with high fever, vomiting, pain in the head, back or limbs and general malaise. Some cases begin with convulsions, even when the symptoms are limited to the spinal cord. Paralysis may be present from the first or may not appear for two or three days after the onset.

Local symptoms. These depend on the seat of the lesion. In polio-encephalitis superior, acute mental symptoms occur when the frontal lobes are involved, hemiplegia when the motor area is involved, and ataxia when the cerebellum is involved. In polio-encephalitis inferior, paralysis of one or more of the cranial nerves occurs. In polio-myelitis anterior, flaccid paralysis of muscles or groups of muscles occurs according to the seat or level of the lesion.

Case 1. A child two years and three months old was perfectly healthy and normal. Was taken suddenly ill one night with convulsions, loss of consciousness, vomiting and temperature of 102°F. This lasted for a week. After this she could not speak. She was unable to walk but could stand. The power of the legs was good. All arm movements were normal. Legs were not rigid. She became very dirty in her habits and was very troublesome.

Although pathological evidence was wanting, yet the history of the attack and the previous healthy condition, made it probable that the disease was vascular in origin and situated in the frontal lobes.

Case 2. Boy, aged nine years. Previous health good. Awoke one morning with a right sided hemiplegia and aphasia. He did not lose consciousness at first but he soon beacme drowsy, which deepened into a coma from which he died three days later.

At autopsy, there was some flattening of the convolutions especially of the left side, but the only pathological lesion found was, on microscopical examination, numerous hæmorrhages and thromboses of the smaller vessels in the motor regions.

The cause of this thrombosis was thought to be influenza, as that disease was prevalent at that time.

Case 3. Girl, aged four and one-half years, whose previous health had been good. She suddenly became feverish, vomited, lost the power in both legs and control of the sphincters. When seen, a month later, she appeared well nourished and could just stand with her legs wide apart. She could not walk. The gait was very ataxic. Marked incoordination existed in the hands especially the right. There was no nystagmus or optic neuritis. Articulation was slow and bulbar in character. She recovered in about six weeks.

This was evidently a vascular lesion and probably involved the cerebellar or peduncular regions.

Case 4. Boy, aged two and one-half years, whose mental and general conditions were good. He became suddenly ill with fever and unconsciousness which lasted two days. It was then noticed that he had a squint and slow rhythmical movements of the left arm and leg. These passed away in a few days and similar movements appeared in the right arm and leg, which persisted, although less marked, for some time. He could not stand, because of the ataxia. The paralysis of the left external rectus muscle persisted.

The lesion was probably vascular and affected the cerebrum, cerebellum and the sixth nerve after leaving the nucleus.

Case 5. Girl, aged five, whose previous health was good. For three days she was feverish and languid. Then she suddenly developed right facial paralysis and continuous vomiting. There was no ocular paralysis or optic neuritis. There was paralysis of the right side of the soft palate and evident difficulty in swallowing. She gradually became more drowsy and she died from respiratory failure.

At the autopsy, the skull and brain were normal. In the region of the right seventh nerve nucleus, a deep patch of congestion was seen, which when seen on microscopical examination, it was found that the congestion had destroyed the nucleus of the seventh nerve. A milder degree of congestion and perivascular exudation was found in the medulla in the region of the ninth and tenth nuclei on both sides. The sixth neucleus was intact.

Case 6. Boy, aged three and one-half years, who was suddenly taken ill with "brain fever." He recovered but was absolutely deaf and unable to speak. Intelligence was normal and nutrition was good. Although unable to prove the cause the lesion was probably vascular.

Concerning acute poliomyelitis anterior, the author emphasizes two very interesting points. First, when pain is present and is a prominent symptom, it is generally present only when the affected parts are moved. Second, in cases where one arm is affected, with a spastic condition of the leg on the same side, the knee-jerk increased and the planter-reflex gives an extensor response. This is due to the extension of the lesion to the pyramidal tract on the same side.

Case 7. A boy, aged two years, who had had weakness of the left arm since birth and weakness of the legs since a few months afterwards. The birth was normal. Intelligence good. The upper arm and shoulder of the left side was wasted and in a condition of flaccid paralysis. The right leg was weaker than the left but both showed a flaccid paralysis. No faradic response was found in the affected muscles.

As to the pathology, two views are presented. First, that the condition is due to a definite specific infection producing an acute inflammation. Second, that the condition is due to vascular thrombosis, dependent on some altered blood condition, such altered blood condition being due to various causes and not dependent on one specific infection.

Optic Neuritis.

Barrett and Orr. *Intercolonial Medical Journal of Australasia, 20 July, 1902.*

The article reports eight cases of double optic neuritis, five of the patients having regained health; two of them had recovered good vision, one fair vision and the other two had not been so fortunate as to recover vision.

The conclusions of the article are that if cases of double optic neuritis were watched to the end, it would many times be found that good health had been restored and that the cerebral lesion that had been supposed to be the prime etiologic factor had quite disappeared or that it had not existed at any time, but that the case had been one of optic neuritis *per se.*

A Case of Myasthenia Gravis Pseudo-Paralytica with Acute Course. (Ein Fall von Myasthenia gravis pseudo-paralytica mit akutem Verlauf.)

Dorendorf. *Deutsche medincinische Wochenschrift, 1902, No. 51.*

The patient gave a history of gonorrhœa seven years before the symptoms of myasthenia gravis and of syphilis one year before. On the sixth of April, 1902, he felt entirely healthy, and on the seventh double vision appeared suddenly with right-sided ptosis. Two days later there were a general sensation of exhaustion and difficulty in walking. In a few days the arms also began to grow weak. By the sixteenth of April he was unable to walk up a stairway without help. He sought the hospital and was given a vigorous course of antiluetic medication without avail. The symptoms at this time were mostly of subjective nature, in that they were experienced by the patient after attempts at muscular exertion, the ocular movement and the ptosis being the only noticeable defects on physical examination, together with some unsteadiness of gait. On the twentieth of April the facial expression lost its character, owing to the fading out of the naso-labial folds and the inadequacy of the mimetic movements. The trunk muscles became weak so that the patient preferred to recline, and when elevating the head he supported it upon the hand. On the twenty-first of April he had difficulty in swallowing and in masticating, being barely able to bring the jaws together. He was able to walk for a few moments at this time but became easily exhausted after thirty or forty steps. The knee-jerks remained unaltered, and after one hundred repetitions showed no weakness. The electrical examination showed the rapid failure of the muscle responses to the Faradic current during a continuous testing, after the manner described by Jolly, without any alteration in galvanic activity. The blood was normal, there was no dullness over the mediastinum, and no albumen was found in the urine. The patient died suddenly during the night of the fourth and fifth of May. No necropsy was permitted.

ORTHOPEDIC SURGERY

Edited by Arthur W. Elting, M. D.

Late Nervous Complications of Fractures of the Lower Extremity of the Humerus. (Complications Nerveuses Tardives des Fractures de L'Extremite Inferieure de L'Humerus).

ALBERT MOUCHET. *Gazette des Hopitaux, No. 113, Oct., 1902.*

Nervous complications of fractures developing either at the time of the accident, or during the process of healing, have long been recognized, but it is only recently that attention has been drawn to the so-called late paralyses following fractures. These cases concern particularly fractures of the lower extremity of the humerus which have occurred in infancy, and which in adult life, long after recovery from the fracture, present certain nervous complications. Panas in 1877 first called attention to this condition, and similar cases have been reported by Duchenne, Sengeusse, Broca, and others. The clinical history is similar in all the cases. The individuals have sustained fractures of the lower extremity of the humerus in early life, always before bony growth is complete. They have recovered satisfactory function of the joint and usually have noticed the development of a slow but progressive valgus deformity of the forearm. Years after, suddenly, without any appreciable cause or, perhaps, after a slight trauma, paralysis of the cubital nerve develops. On examination of such a patient one notices a valgus deformity of the forearm, with a more or less pronounced deformity of the lower extremity of the humerus, which usually involves the external condyle. This condyle is usually atrophied, at other times it appears somewhat hypertrophied.

The trochlea is thickened and the olecranon approaches the epitrochlea. The groove occupied by the cubital nerve is usually almost, if not completely, obliterated. The writer has examined a large number of cases with reference to the determination of the so-called humero-cubital angle, and finds that in normal individuals it is 160° in the female, and 172° in the male. In these conditions of cubitus valgus the angle usually measures from 150° to 157°. Examination of these cases with the X-ray shows that this valgus deviation is of osteogenic origin, due to the disturbance of the epiphyseal growth of the external condyle, resulting from the fracture. As a result of this disturbance the cubital nerve is dislodged from its normal position and tends to be pressed against the epitrochlea in the different movements of the elbow.

The chain of events then, would appear to be first, fracture of the external condyle in infancy, cubitus valgus, disappearance of the epictrochleo-olecranon groove, and after the lapse of some years, paralysis of the cubital nerve. The diagnosis is, as a rule, not difficult, and the X-ray invariably reveals the abnormal condition of the bone. The treatment should be operative, and an attempt should be made to make a new groove for the cubital nerve, sufficiently deep and wide to prevent pressure upon the nerve during movements of the elbow. The result of the treatment will depend largely upon the promptness of its institution and upon the extent of degeneration of the nerve.

The End Results of Tendon Transplantation in Arthrogenous Contracture of the Knee Joint. (Ueber die Dauerresultate der Sehnenüberpflanzung bei arthrogener Kniecontractur.)

L. Heusner. *Archiv für klinische Chirurgie, Band 67, Heft 3.*

The writer calls attention to a previous article in which he advocated the transplantation of the flexor tendons to the extensor tendon, in the treatment of contractures of the knee joint resulting from chronic inflammation. This procedure is best adapted to those cases in which extension, forceful straightening or plaster of Paris do not produce the desired results. The writer reports the case of a young woman of twenty-four years, who presented a marked contracture of the left knee joint resulting from gonorrhœal inflammation, in which he was able to straighten the leg and maintain it in a straightened position by the transplantation of the tendons of the biceps and semitendinosus muscles to the tendon of the quadriceps. In another patient of 52 years, he was able to correct a somewhat similar deformity resulting from rheumatism of both knee joints. In certain other cases of tuberculosis of the knee joint with marked contracture, he was able to correct and maintain in the corrected position the affected joint, by the transplantation of the muscles already mentioned. In some cases he transplanted only the tendon of the biceps, but found that this tended to produce an inward rotation of the leg, which was only corrected when he transplanted either the semitendinosus or the semimembranosus. He advises the employment of long incisions in order that the course of the tendons may be changed as gradually as possible. Latterly, he has preferred to use the tendon of the semimembranosus rather than that of the semitendinosus, because the former is a stronger muscle and does not appear to present the same tendency to infection after transplantation. The writer calls attention to the fact that both Professor Rehn and Professor Bier have reported satisfactory results from the employment of this method of treatment of contractures of the knee joint. It has also been used in certain cases of resection of the knee joint to prevent the development of any subsequent contracture. The writer has recently transplanted the tendon of the semitendinosus to the quadriceps in a case of habitual luxation of both patellæ. He, however, thought it would be wiser to always transplant the biceps in addition in these cases. He also reports an interesting case which presented marked outward rotation at the hip joint, in which he severed the tendon of the gluteus maximus muscle from its attachment and then severed the tendon of the ileopsoas muscle from its attachment to the lesser trochanter, after which he attached the tendon of the gluteus maximus to the lesser trochanter, with the result that the external rotation was corrected by causing the gluteus to become an internal rotator. He also advises this procedure in certain cases of congenital dislocation of the hip, associated with marked external rotation.

The Permanent Result of the Redression of the Spondylitic Kyphus. *(Dauererfolge des Redressements des spondylitischer Gibbus.)*

OSCAR VULPIUS. *Zeitschrift für orthopädische Chirurgie, Band, XI, Heft 1.*

The fate of the method of forceful redression of the spondylitic kyphus inaugurated by Calot was quite remarkable. Adopted at first by a great many surgeons, it fell in a very short time into complete disuse, and to-day is usually applied only in certain cases of paralysis which do not respond to other methods of treatment. There are but very few reports in literature regarding the permanent results of this method. Joseph has recently demonstrated both pathologically and clinically, that it is possible to reduce a kyphus by this method and to produce a cure. The principal objection raised by the pathologists to the method of Calot, was that in straightening the kyphus a cleft was produced in the anterior surface of the spine, which would not be filled by new formed bone, because of the fact that tuberculosis is a destructive process not attended by regeneration. Joseph has demonstrated that in the forceful straightening of the spine, the suprakyphotic segment of the spine sinks into the softened body of the vertebræ and thus straightening is produced without severing the continuity. The conditions of such a case are most favorable for a consolidation of the spine.

In 1898 the writer reported at the Surgical Congress two cases of forceful redression, the subsequent course of which, as well as the present conditions, are the subject of this article.

In both cases five years have elapsed since the operation. The first case occurred in a boy of eight years, who presented a marked kyphus situated in the upper lumbar region, associated with an abscess on the right side of the lower abdomen. This abscess was opened and discharged for one year, at the end of which time it healed. Four weeks after the opening of the abscess manual redression of the kyphus was performed. The patient was put up in plaster of Paris, which was worn for nearly a year, after which a cellulose corset was applied for one year; since which time the patient has had no further trouble, and is in all respects to-day a strong, healthy, able-bodied boy, with practically no demonstrable deformity of the spine. The second case, a boy of eight years, presented a marked kyphus extending from the seventh to the twelfth dorsal vertebræ, and with abscesses upon both sides of the abdomen. The latter were drained, and were completely healed at the end of a year. Two weeks after draining the abscesses redression was performed, and the patient treated in practically the same manner as the first case, with the result that at the end of two years the spine was not only almost normal in appearance, but the patient was strong and able-bodied and had had no further trouble with the spine. Associated with the forceful redression of both these cases the writer resected the spines of the involved vertebræ. These cases seem to demonstrate the cure of certain cases of deformed spine by means of a more or less modified Calot's procedure.

The writer states that his present method of treating spondylitis in cases which are anæmic, emaciated and in poor health, is to place them in the so-called plaster of Paris beds, especially during the summer months. If the general condition of the patient is good and treatment is instituted in the cooler months, a plaster of Paris jacket is applied. In the application of the jacket vertical suspension, combined with extension on the feet, together with the induction of an exaggerated lordosis of the suprakyphotic and infrakyphotic segments is employed. Only when the spondylitis is situated high up are the cervical vertebræ included in the dressing.

In this modified form the writer considers Calot's procedure, or more properly, a modified Sayre method of correction, important in the treatment of spondylitis.

The Treatment of Congenital Club Foot in the New Born. (Die Behandlung des angeborenen Klumpfusses beim Saügling.)

W. von Oettinger. *Berliner klinische Wochenschrift, Nos. 26, 27 and 28, 1902.*

Cases of club foot may in general be divided into two great groups; those occurring among the intelligent classes and the so-called polyclinic material. The most important questions to be settled are, first, when shall treatment be commenced, and secondly, how shall they be treated? The great majority of authors are decidedly in favor of treatment as soon as possible after birth. The methods of treatment can, in general, be divided into seven groups; 1st, massage; 2nd, bandages; 3rd, adhesive plaster; 4th, splints; 5th, plaster of paris; 6th, apparatus; 7th, operation.

Against all of these methods certain objections can be raised; particularly against the first four. While plaster of paris has decided advantages, its disadvantage is that it cannot be employed immediately after birth. Apparatus is more or less unsatisfactory and difficult to manage. While operations are desirable in older cases they are rarely indicated in the new born, except tenotomies.

Club foot is a deformity involving a displacement of the foot along the four axes of the foot. Adduction, supination, plantar flexion and internal rotation are the results of the displacement along these axes. The internal rotation is located at the knee rather than at the foot, and therefore every bandage applied to the club foot should extend above the knee and the knee should be in a position of flexion, because in this position the leg can be more readily rotated outward.

The writer proposes a new method of treatment, which consists in a reposition of the foot as soon as possible after birth and usually without the employment of anæsthetics. If this be performed within the first nine months of life tenotomies are usually not necessary. The reposition is obtained simply by manipulation with the hand and does not require any special apparatus. After the deformity is corrected the foot is held in the over-corrected position by means of the bandage, which passes around the foot from within outward and then passes upward along the outer side of the leg to the knee, which is flexed at a right angle, around which the bandage passes and by a spiral turn is again brought to the foot, and again passing around the outside is brought back to the knee. This dressing is changed at intervals of a few days at first, but after a time is allowed to remain on from one to three weeks. When the foot shows a disposition to remain in the normal position bandages are removed and a somewhat similar bandage of elastic is applied every night and removed in the morning. When the child begins to walk it is provided with a wedge sole of cork which is about two centimetres in thickness on the outside, while it is only about .3 centimetres in thickness on the inside. The tendency of this is to hold the foot in a position of pronation.

The advantages claimed for this method are the case of its application and the fact that it can be carried out in early life when, as a rule, comparatively few months will suffice to correct practically the entire deformity.

Owing to the fact that the writer's observation covered only a period of less than two years, he is not able to make any positive statement as to the permanency of the cure.

LARYNGOLOGY, RHINOLOGY AND OTOLOGY

Edited by Clement F. Theisen, M. D.

Notes on the Development of the Pharynx after Birth.

DWIGHT. *Annals of Otology, Rhinology and Laryngology. November, 1902, p. 632.*

Two phases of human anatomy of great practical importance in medicine which are as yet almost unknown to other than professed anatomists, are the range of individual variation and the progress of development after birth. Embryology has done great service to science but it is a field that only experts can fill. The study of post-natal development is one that can be undertaken by anyone who can command comparatively simple apparatus. The development of the pharynx of which the larynx is an outgrowth, is a case in point. The infant's skull is very different from that of an adult in many respects besides its size. It is practically all cranium. The orbits are relatively large, because they are the cases of sense-organs which almost at once become functional, but the face is very small. The reason is that the face is essentially composed of the jaws. A side view of the skull of an infant compared with that of an adult tells much of the story. The face does not descend in front as in the adult, and the lower jaw comes but little below the level of the occiput. There is no antrum of Highmore. A striking statement of the peculiar shape of the face is that at birth its breadth is to its height as ten to four, while in the full grown head it is as nine to eight. A median section of either a frozen head or of one hardened by formalin, gives even more important information. The basilar process instead of ascending is nearly horizontal, the posterior border of the vomer slants strongly forward, the nasal fossæ are very shallow, the hard palate if prolonged backward would strike at about the junction of the basi-occipital and the sphenoid. The patulous mouth of the Eustachian tube which in the adult is on a level with the inferior turbinate is below that of the hard palate. The real danger of a cold in the head at the beginning of life is thus evident. The naso pharynx hardly exists. It is not a chamber but merely a passage from the nose, coming down behind the palate.

Considering the median section, the author states that the outline of the tongue is both peculiar and characteristic. It is relatively long because the vertical diameter is strikingly less in proportion than later. The larynx is suspended from the hyoid, and any changes in its position must at least to a degree, be concomitant with and dependent upon those of the face. As the face grows down the larynx must descend with it. The infant's larynx, minute as it seems, is said to be relatively large. The top of the epiglottis is on a level with the lower part of the anterior arch of the atlas, and the lower border of the cricoid approaches that of the fourth cervical vertebra. The changes of the pharynx during growth depends on two processes. The first is the development of the face, which as it enlarges, necessarily grows downward, carrying the hyoid and larynx with it. The other is the rising of the basilar process and the increased prominence of the condyles.

Thus the naso-pharynx changes from a passage to a chamber by the front of the basilar process bending up behind, and the face descending in front. In the course of the first year, the diameter of the posterior nares doubles, but the proportion is about the same; that is each is slightly broader than high. After the second year, the height increases more rapidly, but it takes till after puberty for the height to exceed the distance between the internal pterygoid plates. The descent of the larynx is a very interesting process. While it may be stated that the position which is called the normal one is reached by puberty, the levels for the intervening years cannot be given positively. Just what the normal position may be is a question not yet settled. Mehnert has shown that the larynx, and indeed the respiratory apparatus as a whole, continue to descend during life. He believes that in old age the larynx may reach the lower edge of the third thoracic vertebra.

Concerning the Etiology of Angina. (*Zur Aetiologie der Anginen.*)

H. Bonhoff. *Centralblatt für Bakteriologie, Bd. XXXII, No. 12, 1902.*

According to Bonhoff there are at present only two well recognized forms of angina outside of true diphtheritic angina. One of these is the ordinary streptococcus angina, and the other is the angina produced by the spindle shaped bacillus of Vincent. Other forms have been described but only as rarities, such are the tetragenus, pneumococcus, and micrococcus conglomeratus anginæ. The streptococcus angina is usually ushered in with high temperature and severe general symptoms, severe headache, loss of appetite, sometimes albuminuria and even endocarditis.

The angina due to the fusiform bacillus of Vincent appears in two forms, the diphtheroid form, and the ulcero-membranous form. In the form resembling diphtheria, there are membrane formation, fever lasting two or three days, and swelling of the regional glands. In the ulcero-membranous form there are ulcers and membrane formation, slight fever and glandular involvement. These cases may last seven or eight days, and may hang on for two months. In this paper the author describes a form of angina which occurred in Marburg and the surrounding country during the winter months of 1902. The cases occurred mainly among young adults between twenty and thirty, and the disease was distinctly contagious. The cases began with quite severe fever, reaching as high as C. 40° in a good many cases, there were severe headache and marked depression, and the patients felt as if they were very sick. The slight involvement of the throat was often altogether out of proportion to the severity of the symptoms. Usually the throat lesion took the form of patches of membrane scattered over the tonsils, only occasionally did definite membrane formation take place. The symptoms usually lasted three to four days, when convalescence took place. There were no unpleasant sequelæ. The organism which was constantly found in these cases was a small bacillus which often occurred in groups and which did not stain by Gram. The author gives a thorough description of the cultural characteristics of the organism, which does not resemble any of the known pathogens.

A Further Contribution as to the Cause and Specific Cure of Hay Fever. (Weiterer Beitrag zur Ursache und Spezifischen Heilung des Heufiebers.)

DUNBAR. *Deutsche medicinische Wochenschrift, February 26, 1903.*

With few exceptions most authors are agreed, that a certain individual predisposition is necessary for the development of hay fever, but that these susceptible subjects only develop the disease when some external irritant is present. The author has been making experiments as to the specific cure of hay fever for seven years, and worked on the theory, that positive conclusions in regard to the exciting cause of hay fever could only be obtained, if it were possible to obtain the irritating substance free from admixture with other foreign substances, and if at any season of the year, typical symptoms of hay fever could be produced in hay fever sufferers with this irritant. This irritant should be without result, in people who had never suffered from hay fever. He was able to determine that the pollen granules of barley, wheat, rice, maize, rye and all other true grasses or cereals, examined by him, contain substances, which produce every symptom of hay fever in people who have been afflicted with this condition, but produce no effect on people who have *not* had hay fever. He was also able to determine by his experiments, that the pollen of all other plants examined by him, which, according to most authors, excited the attacks, were absolutely without effect in hay fever patients. It was also determined, that not only the mucous surfaces supplied by the trigeminus are excited by the hay fever poison, as has been claimed, but other mucous membranes as well, such as that of the rectum. His experiments, made during December and January, also determined that hay fever patents are not only susceptible to the hay fever poison during the critical periods, June and July, but at any time of the year. The active substance of the pollen granules, is insoluble in ether and alcohol, but is fairly soluble in water and normal salt solution, and very soluble in nasal secretion, tears, saliva, and blood serum. Experiments were made on hay fever patients, with a pollen solution, which the author calls "pollentoxin," with the most remarkable results, as the following case shows: A hay fever patient was given a subcutaneous injection of 1-10 cubic centimetres of a pollentoxin solution, dissolved in 1 cubic centimetre of water. A minute after the injection, the patient complained of dizziness, and in 15 minutes she had seven or eight severe paroxsyms of sneezing and coughing. The cough was like the paroxsyms of whooping cough. At the same time, there was a discharge from the nose, and the mucous membrane in both nostrils became so swollen that the nostrils were completely occluded. The conjunctiva of both eyes were congested, and there was great weeping from the eyes. The patient's face became tremendously swollen and cyanotic. Fifteen or twenty minutes after the injection, complete aphonia developed, and a laryngeal examination showed that both cords were very red, and the mucous membrane of the fauces was also much congested. There was pain in the chest, with an inspiratory stridor, and symptoms of bronchitis developed. Fifty minutes after the injection, she complained of itching of the skin, and an examination showed the presence of an urticarial eruption, distributed all over the body. The patient gradually got better, the symptoms slowly improving, and on the fifth day she was perfectly well again. The same amount of pollentoxin injected into the arm of a person who had never had hay fever, was followed by absolutely *no* reaction whatever. Tests made by inhaling the pollen of grasses or cereals, and by dropping solutions of the pollen into the eye or nose, were followed by similar results. The tests were used in a number of people who had hay fever every season, and *every* time brought on a typical attack as in the case reported above. When employed in people who had never had hay fever, they never caused the slightest irritation on the part of the mucous membranes. As a result of the author's experiments on nine hay fever patients, and in more than twenty other control subjects, the deduction may already be drawn, with some certainty, that the pollentoxin always causes specific symptoms of irritation in hay fever sufferers. Animals were inoculated with pollentoxin, a serum was obtained, and tests made on eight hay fever patients in the following way: The usual pollen solution was dropped into one eye of each, and after the characteristic irritation on the part of the mucous membrane had resulted, the solution, with the addition of the serum, was dropped into the other eye of each, with *absolutely negative results,* proving that the serum practically neutralized the action of the pollen solution. The author believes, that without question, it will be possible to obtain an improved serum, which can be used with every promise of excellent results, both in the nose and eyes of hay fever sufferers. The future will show whether it will be possible to produce a serum for subcutaneous injections, which will render hay fever patients immune for a long time.

Perichondritis of the Larynx.

Ward. *Laryngoscope, February, 1903.*

Perichondritis of the laryngeal cartilages is fairly rare, and usually precedes a chondritis, in which case the attending results are always of the most serious import. If traumatism is excluded, the etiology is more or less obscure. It follows tuberculous, and malignant diseases of the larynx, syphilis, typhoid fever, diphtheria, scarlet fever, erysipelas, and, in fact, any infectious process. Bosworth reports thirty-three cases collected by him, two of which occurred in his own practice. Of these cases, nine are given as idiopathic, nine as syphilitic, eleven followed typhoid fever, one was diphtheritic, one traumatic, and two were probably due to lordosis. The morbid changes which may take place in the laryngeal cartilages differ in no respect from those seen in cartilages elsewhere. In a chondritis and perichondritis due to traumatism and rheumatism, the inflammatory exudate will likely terminate in absorption and resolution. The same may follow as a result of typhoid fever. In the specific forms of the disease, when the pathological changes are due to an infectious process, serious destruction to the cartilages of the larynx may be expected. The early diagnosis of an acute idiopathic perichondritis and chondritis of the larynx is often attended with serious difficulty. In the rheumatic and specific forms of the disease there is no suppuration or destruction of cartilage, and only slight deformity, the onset is insidious, the symptoms are at no time pronounced, and will often escape detection. If, however, the process is an infectious one, it will be followed by marked constitutional disturbances.

The author reports a case of a man, aged fifty-three years, who eight years years before had been treated for a specific necrosis of the nose. The onset of the present attack had been gradual, and affected chiefly his voice, until there was complete aphonia in two or three weeks. On laryngoscopic examination, a circumscribed swelling of considerable size and confined to the left arytenoid was seen. The swelling was dark red in color, and firm to the touch. No pus was found either after puncture or incison, both of which were freely applied. He was given potassium iodide and allowed to go home. The next day the author was hastily summoned, and found the patient cyanosed and gasping for breath. A tracheotomy was performed, and the patient sent to the hospital. The iodide was then pushed until he was taking 300 grains a day, and after three or four weeks the swelling began to subside. The left arytenoid became necrotic, and was expelled during a fit of coughing.

PATHOLOGY AND BACTERIOLOGY

Edited by Richard Mills Pearce, M. D.

ASSISTED BY

E. MacD. Stanton, M. D., and Charles K. Winne, Jr., M. D.

Hodgkin's Disease.

W. T. Longcope. *Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, 1903, I, 4.*

In a most complete study of the subject, the writer gives the clinical histories and the pathological findings in eight cases of Hodgkin's disease. The enlarged lymph glands from these cases present a definite series of changes characterized by an early increase in the lymph-adenoid tissue, with later, proliferation of the endothelial cells lining the reticulum, the formation of uni- and multinuclear giant cells, thickening of the reticulum and final overgrowth of connective tissue. Eosinophiles are frequently found in great abundance, especially in the early cases. Together with this abundance of eosinophiles in the lymph glands is found an increase in the eosinophilic leucocytes and myelocytes of the bone marrow. During the course of the disease new lymph glands are constantly being formed which ultimately become the seat of lymphomatous growths.

In those cases in which the spleen is involved the earliest changes are always seen in the Malpighian bodies which undergo changes analagous to those in the lymph glands. As the nodules increase in size they fuse together so as to form large, irregular lymphomatous masses sometimes extending over several microscopic fields. These lymphomatous masses, in some instances, protrude into blood vessels causing infarctions.

The so-called metastatic nodules, found in the liver and other organs, begin as small masses of lymphoid tissue which later undergo alterations very similar to those seen in the lymph glands. In the liver these lymphoid masses are situated in the portal tissue.

The histological picture in Hodgkin's disease bears no resemblance to true lympho-sarcoma in that there is no infiltration of the capsule and the extension of the process is confined solely to pre-existing or new-formed lymphoid tissue.

The writer has studied, in connection with these cases, the lesions found in two cases of Banti's disease and one of splenic anæmia; in neither of these conditions did the histological findings correspond in any way to those seen in Hodgkin's disease.

No evidence of tuberculosis was found in any of the cases. Tubercle bacilli could not be found in the sections, and intra-peritoneal injections into guinea pigs of portions of the glands from four of the cases gave negative results.

No conclusion as to the etiology of the disease is given but the opinion is expressed that the results of recent studies on lymphotoxic and myelotoxic intoxications suggest the possibility that in Hodgkin's disease there may be some substance, either of bacterial or cellular origin, which is capable of exciting the peculiar proliferative changes in the lymph glands and the lymphoid tissue of the various organs.

These findings, confirming as they do in every particular the recent work of Reed (*Johns Hopkins Hospital Reports,* 1902, x, 133) and agreeing with the conclusion, of Simmons (*Journal of Medical Research,* 1903, IX, 378) give to Hodgkin's disease a position as a distinct clinical and pathological entity and separates it sharply from the various lymphatic hyperplasias and tuberculosis.

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A DISCUSSION ON THE CHARACTER OF MILK SUPPLIED TO CITIES.

Held in the rooms of the Albany Institute and Historical Society, Wednesday evening, January 13, 1904, under the auspices of the Medical Society of the County of Albany.

I. THE PRODUCTION OF SANITARY MILK FROM THE PRODUCER'S STANDPOINT.

BY R. A. PEARSON,
Professor of Dairy Industry, Cornell University, Ithaca, N. Y.

The improvement of the city milk supply is a question in which I am intensely interested and it is very encouraging to find such a representative gathering of persons in this city who have come here to listen to the discussion of this subject, which is supposed to be one of small importance, or at all events one which should be relegated to a comparatively few persons. Really it is a subject in which every one should be interested.

My paper takes up the subject from the producer's standpoint. There is much that I would like to say from other standpoints, but I have confined what few remarks I shall make to the standpoint of the producer.

One of the reasons why there has not been more advance in the movement for better market milk undoubtedly is, that the question is too seldom considered from the producer's standpoint. People say "we should have purer milk," and they seem to think the producer should act at once upon the suggestion. Although they may go to great length to show *how* pure milk should be produced and handled it is seldom that they consider what this means to the producer. It is strange that this is the case because no improvement can be effected in the character of any article without the interest and co-operation of the manufacturer or producer. And when an attempt is made to work out the problem in such a one-sided manner it is doomed to end in failure.

There are at least four influences that are respected by milk producers and it may be profitable to consider them briefly. They are (1) Legal regulations, (2) Intelligent public opinion, (3) The example of high class dairies and (4) Endorsement by responsible persons.

Reasonable and well-enforced laws and ordinances are not objected to by well-meaning dairymen as they see the advantage of suppressing undesirable practices. Carefully compiled data show that in towns where the milk regulations are strict and well enforced, the average per capita use of milk much exceeds the same in towns where it is known the authorities are doing little to protect the milk supply. In Rochester, New York, where about four thousand dollars are expended annually for the supervision of the milk supply and a few thousand milk samples are examined both chemically and bacteriologically each year, the average daily use of milk amounts to about eighty-three one-hundredths pint per capita; while in St. Louis, Missouri, where less than two thousand dollars are expended annually for the supervison of the milk supply and only a few hundred samples of milk are examined chemically and bacteriologically and where it is officially admitted that the milk regulations are not well enforced, the average daily use of milk amounts to only about thirty-seven one-hundredths pint per capita. Just and well-enforced laws are not objectionable. They increase public confidence in milk and thus increase the demand for it. It would be well to add here that by "well-enforced" we mean enforcement by an officer who is in sympathy with all honest efforts to improve the milk supply and who does not labor under the belief that all persons engaged in producing or handling milk are necessarily by nature law breakers. There are in office a few persons of this latter class and it may often be said their work is useless or worse than useless, regardless of the character of the law they are called upon to execute.

Dairymen would welcome an extension of the laws so as to stop a certain kind of dishonest competition practiced by a few which results in greatly retarding the advancement of the industry—the making of unwarranted claims regarding the quality of milk offered for sale. Those who go to the trouble and expense of equipping and conducting their dairies in such a manner as to greatly reduce the bacterial contamination of their milk and proceed to advertise this fact for the purpose of gaining trade, have a just grievance when unscrupulous persons come forward with the dishonest claim that they too are exercising the same care in all respects and offer to sell their milk at a price for which it could not be sold if produced as asserted. It may be said that the same is true in respect to all commodities. It is; but to a much less extent than in the case of milk. Generally the quality of an article is more or less evident even to the casual observer. But the quality or wholesomeness of marketable milk cannot be known from its appearance. Probably milk can be adulterated or contaminated to a greater extent than any other food product without causing a change in its appearance. This fact in connection with the facts that milk is generally used raw and it is depended upon for nourishment particularly by those in greatest need of pure food, should be reasons enough for taking measures to lead to the improvement of the milk supply that might not be resorted to with other foods. There is nothing so discouraging to the man who tries to market high grade milk as competition of the kind referred to. He can compete with milk produced in an ordinary manner and sold at a lower price but it is most discouraging to have to compete with that cheap milk when it is loudly proclaimed to be produced with care that was never exercised. Some time ago the Keystone Veterinary Society of Philadelphia carefully investigated a number of dairies that displayed prominently such signs as "Hygienic Milk," "Veterinary and Sanitary Inspection" and the like. It was found that these statements were first used by persons who had some good reason for using them but to prevent losing trade other dealers soon adopted them although they had no right to do so. Some of these latter did not even know the meaning of the words they used. Some claimed to be their own sanitary inspectors. Some frankly acknowledged their dishonesty. It would seem that a legal method could be devised for checking such reckless and harmful advertising.

Dairymen would welcome also the enactment of regulations regarding the care of milk bottles when in the possession of the customer. The neglect and abuse to which these milk vessels are subjected by some persons are shameful. The case is like this: The dairyman or dealer goes to the expense of providing the most sanitary and expensive milk package available. Many of these are appropriated for various household purposes; many are broken. Many find their way to the ash dumps but some of these are finally picked up and returned to their owners. The losses on these accounts are very heavy, some estimate that the average life of a bottle will not exceed seven deliveries. But the worst of all is the condition of many jars when they are returned to the dairyman or dealer. Much good might follow the enactment of an ordinance requiring the proper care of milk bottles and their prompt return except when they have been exposed where a contagious disease exists.

Public opinion was mentioned as an influence that would be respected by dairymen. If the public should insist upon having a better grade of milk than it now gets, improvements would be made very quickly, but the fact is there is little general complaint about the character of our market milk. Many persons do not use milk because they have been unsuccessful in finding a satisfactory supply and others use as little as possible for the same reason. But only a few of these are making efforts to procure good milk, thus bringing to bear pressure for a better supply. Occasionally a little general interest in the question is aroused but it quickly subsides. The great demand is satisfied with milk that is not sour and that contains a fair proportion of cream. Little stress is placed upon the importance of having it clean. As a rule the consumer shows absolutely no interest in the sanitary condition. All milk looks alike and tastes alike to most people whether it was produced under sanitary or unsanitary conditions and these matters are not considered. A most remarkable feature of the case is the position or lack of position taken by institutions buying on contract, especially hospitals. As a rule these institutions buy their milk without stipulation as to sanitary quality. To the average consumer and dairyman this is proof that the present milk supply is good enough. They say it must be good enough if it is used in institutions established for curing the sick and often seemingly spending money without stint in whatever way it is believed such expenditures will be of benefit to the sick. Naturally in all matters of health the public looks to physicians and to institutions conducted by physicians for example. When they see care being taken in these quarters in the selection of milk then will they themselves take more care. Unquestionably one great reason why there is not more sanitary milk produced to-day is that there is not more demand for it. Well-to-do and responsible dairymen are to-day sending to the city milk of average quality and they would be glad to make the few necessary changes in equipment and management of their places to enable them to produce high grade milk if they could find an outlet for it at a sufficiently advanced price to pay the increased cost of production. Unfortunately few wholesalers want such milk because few retailers want it and few retailers want it because few of their customers call for it.

The example of well-conducted dairies was mentioned as an influence toward better milk. It is a strong influence. Along with their other benefits, such dairies have the effect of educating the public and they have done much in this way. When they have been well conducted and have persisted through more or less serious temporary difficulties which seem bound to occur with most plants of this kind, they have almost always flourished. And it is a noticeable fact that at other dairies, especially those nearby and competing there is a decided tendency toward improvement.

The fourth agency working toward better milk is the Milk Commission. Several years ago I was strongly of the opinion that by this means much would be done toward the improvement of our market milk. I am still of the same opinion and think this is justified by present conditions. A few Milk Commissions are in operation and doing good work. The results of their work which can be exactly measured sometimes seems small, but when we remember that the idea is a comparatively new one and compare what they are doing to-day with the conditions of twelve or fifteen years ago, it is seen that much has been accomplished. Sometimes the Commissioners are criticised as being too far in advance but persons who take this position overlook the good effects of their work as an educational agency.

There is no doubt but that dairies not known to the Commissions are benefited by them, certainly the public is being slowly educated. It is probable that the Commissions should be better supported in some cases, especially by physicians who most appreciate the value of their work. It is possible also that they might in some cases properly give more encouragement to the dairies they control. The theory that the best dairies should be supported is a sound one. One of the first reasons is that this removes to a large extent unfair competition such as has been mentioned. Another reason is that the average quality of market milk can be raised as well by encouraging the good as by punishing the bad. Of course also we should add that for their own information physicians should take steps to learn which are the most reliable dairies.

We have mentioned four of the influences for better market milk. All of these are forcible but no one will have the force it should have unless there is a willingness on the part of the purchaser to pay a fair price for quality. We know what it means to produce milk in such a manner as to exclude unnecessary contamination and it is not necessary to rehearse here the many details that must be looked after when contamination and fermentation are being reduced to the lowest practicable limit. They may be summed up in the words cleanliness and low temperature. Any dairyman within easy reach of a city can market his milk at the regular market rate without exercising unusual care in its production and handling. It is not natural to think he will increase the cost of his operations unless it is made profitable to do so. It is of course to his own interest to have a sanitary stable, healthy cows and to use wholesome feeds, but he should not be expected to keep his cows scrupulously clean, discard foremilk and sterilize utensils unless he is paid for doing these things. One-half to one and one-half cents additional per quart would cover the cost of many desirable improvements. A campaign for better milk therefore, should have a special department charged with the education of the public as to the increased value of better milk. I believe the dairymen will be found ready to respond to a demand for sanitary milk accompanied by a willingness to pay for it.

II. THE PRACTICAL SIDE OF THE QUESTION OF MILK SUPPLY.

By CHARLES HARRINGTON, M. D.,
Assistant Professor of Hygiene, Harvard Medical School, Boston, Mass.

In the preliminary notice of this meeting I observe that it is stated that I am to speak from the standpoint of the chemist, but inasmuch as my connection with milk supplies has been more in the line of control than of their normal chemical composition, I shall avail myself of the privilege, expressed in my invitation from Dr. Pearce, to take rather the practical side of the question.

The importance of a supply of clean, pure milk is so universally understood by the medical profession that its discussion here would be a waste of time, for it is conceded that, from the standpoint of economy and nutrition, it must be free from adulteration, and from that of the public health, that it must be clean. To secure such a supply requires continuous care and hard work. It cannot be acquired suddenly, but must be the result of agitation by the profession and of more or less necessary coercion of those who produce and distribute it.

So far as I am aware, the history of all large public milk supplies is the same, up to the time when official supervision begins in earnest and the dealers and producers realize the fact. Then we observe an improvement in its nutritive properties in direct porportion to the extent to which punitive measures are enforced, and this obtains so long as the public authorities are active and no longer; for relaxation of enforcement of the law is followed at once by a return to pre-existing conditions. The stamping out of fraudulent practices is usually, and, indeed, almost necessarily, the first step to be taken, and then attention must be turned to improvement in the matter of handling and distribution so that the supply shall be clean as well as pure; and this is by far the most difficult part of the work, for it necessitates education of the public, the adoption of strict rules which must often involve some personal hardship, and the employment of a staff of assistants, which, under the usual conditions of municipal administration, it is difficult to secure.

To illustrate what the securing of a proper supply of milk involves, let us take the case of a city of any considerable size, in which either no control or inefficient control has been exercised. Examination of a few hundred samples gathered hap-hazard will show that the great majority are adulterated in one or more ways; if not watered, they have been robbed of more or less of their fat; whether watered or skimmed or both, many are colored with annatto or caromel or aniline dyes, in order that they may appear to be of good, rich quality; a fairly large proportion, even of those not otherwise adulterated, contain chemical preservatives, notably borax, boric acid and formaldehyde, introduced to obviate the use of ice and to enable the dealer to dispose of his stale stock. In years gone by, when the laws governing the inspection and sale of milk began to be enforced in Massachusetts under the leadership of the State Board of Health, it was not an uncommon thing to find evidence of all four forms of adulteration in the same sample.

Then, let us suppose, the authorities of the city of which we are speaking determine that such things shall not be. They appoint an inspector, give him a working staff and a proper appropriation, and tell him to enforce the law without fear or favor. If he is in earnest, his troubles begin at once and come from all sides. He begins by haling a number of offenders to court, and at once arouses the enmity of all of the bad element in the trade. The cases are defended by able attorneys and every obstacle possible is placed in the path of conviction; friends of the accused try persuasion and threats; appeals are taken to higher courts, and the law itself is put upon trial, until every possible technical question has been passed upon by the court of last resort. In the meantime he is accused of discriminating against this man and favoring that one; more than likely it is whispered that his salary is but a small fraction of his income and that he is amassing wealth beyond the dreams of avarice. He receives anonymous communications containing threats of bodily harm and, worst of all, confidential information that his most trusted lieutenants are receiving bribes from certain specified individuals and syndicates. This, indeed, causes him some worry, for he realizes that, if it be true, his own honor is at stake. Thus he must watch both his enemies and those to whom he looks for honest co-operation. If he is influenced by threats or by persuasion, and, more than all, if he lays himself under any obligations whatsoever, he and his cause are lost; but if he pursues his course without fear or favor, stands by his men when they are right and dismisses them on the slightest proof of unfaithfulness, he cannot fail to win, assuming, of course, that he has the support of his official superiors. The curve of improvement, which, for a time, deviates but little from the horizontal, takes at last a sudden upward direction and then gradually attains its maximum height. Having accomplished this result, he cannot relax, but must continue to keep a tight rein so that his curve shall not begin to descend. He finds that whereas adulteration was formerly epidemic, it is now sporadic. Occasionally an acute exacerbation occurs, owing to inequality of supply and demand; but he applies the remedy, and order is again restored.

Having stamped out the extensive practice of adulteration so far as is possible, for an absolutely pure milk supply is as inconceivable as an absolutely moral community, he can now devote a larger measure of attention to the subject of a cleaner product; that is to say, to the problem of reducing the bacterial content by improved conditions at the farm and better methods of handling, storage and distribution. The enormous influence of ordinary stable filth and dust, of uncleanliness of vessels, and of high temperatures in the rapid increase in the bacterial content has been demonstrated repeatedly by Freeman, Russell, Park and others, who have preached the gospel of cleanliness to the profession and to the public without ceasing.

Naturally, he looks to the public for sympathy and support, for it is the consumer that suffers from the results of uncleanliness; but so far as my own experience teaches, he looks in vain. Viewed as an academic question, the problem of clean milk meets with approval; but when it is approached practically, interest wanes and soon disappears. One would suppose that the layman, to whom the words "germ" and "bacteria" are associated only with disease, would revolt at the idea of receiving milk containing billions of these organisms to the pint; but if he does, it must be in secret. I do not know what the conditions of delivery here in Albany may be, but I can well believe that they are much the same as with us in Boston, where, for the increase in the number of bacteria per cubic centimeter after the milk reaches the city, the public is largely to blame. It is thus: The consumer has become accustomed to receiving his daily supply in the very early morning hours, the vessel or vessels containing it being left on the doorstep or in a box provided for the purpose. He prefers it in glass jars, which are more attractive than tin cans and more likely to be clean. When he takes it in from the outside, the cream is standing at the top and he can pour off that which he needs for the coffee and the inevitable breakfast cereal. It came before he was up; it is fresh from the cow; and he is glad. But as a matter of fact, it is nearly a day older than it was when it reached the city, for it arrived at perhaps seven, eight, or nine o'clock the day before—too late for early morning delivery—and was carried to a stable, where it was poured out of the tin receptacles in which it made its journey, into the glass jars provided for family use. Then it is stored in an ice chest, which is not always kept scrupulously clean, and at the proper time it is loaded onto the wagon and distributed. Suppose the milk man were to say to his customer, "If you will let me bring you milk at 10 o'clock in my large cans and let me measure it directly into your own pitcher, it will be better for us both," what would be the probable answer? I venture to say that if he announced his intention to deliver it at that hour, he would soon have no so-called family trade. His customers would leave him in squads, because they want early delivery and cream at the top. The same result could be achieved by storing the milk in their own, probably cleaner, refrigerator, but they would be conscious the next day that they were using "yesterday's milk." Here is where education is necessary, and I can assure you that progress will be usually pretty slow. And it is education of the intelligent well-to-do, not of the ignorant poor, that is required. The latter class is somewhat more fortunate in its milk supply; one of the few compensations of poverty. The ignorant poor are obliged to buy as they need it. They have no credit and cannot have a milk score; they have no storage room and perhaps no ice; they buy at the grocer's and at the bakery, and these establishments are using, in part, at least, milk delivered directly from the cars, or the *to-morrow's* milk of the family trade.

In still another way the consumer shows his languid interest in clean milk. A. B. maintains a model dairy. His cows are washed and groomed, his milkers are dressed in clean linen, his vessels are sterile; no stale milk is permitted on the premises, the unsold balance being disposed of in some way each day; his delivery wagons are neat and clean, and driven by respectably dressed "strikers." The care which he gives to cleanliness requires additional hands, and his expenses are therefore increased; but the addition of a single cent to the price per quart will take care of that. He is assured by enthusiastic friends that he has a gold-mine; everybody will want his milk. And so they will, but not at an increased cost. That extra cent cools the interest in clean milk, and soon he is making butter of his surplus.

It may be taken for granted that the initiative in the matter of clean milk must be taken by public authority with the co-operation of the medical profession. The public, as a whole, can, I think, be left out of account, for it is indifferent to its best interests and must be saved in spite of itself.

The first question is, How shall we ensure the public against the consumption of milk rich in bacteria? Now, there are two ways of producing milk with comparatively few organisms per cubic centimeter, namely, (a) by subjecting those already present to the destructive influence of heat—i. e., by pasteurization or sterilization, and (b) by preventing their growth from the beginning. To those who have observed the not uncommon untoward results of feeding infants on sterilized or pasteurized milk, the method first mentioned does not commend itself for general use. Moreover, practically the same result can be attained by other means, which involve no special outlay, and the milk suffers no deterioration and contains no undesirable bacterial toxins.

We must begin with cleanliness at the place of milking. Professors Russell, Freeman, Park and others, have given us interesting figures showing the advantage of clean milking and the very great difference in bacterial content when cows are milked in the open air rather than in dusty barns, and when their udders and adjacent parts are clean rather than dirty. A very small amount of fecal filth per quart of milk makes a very great increase in the number of bacteria per cubic centimeter. Thus, it has been shown that with one-tenth grain of stable dirt per quart, one may expect about three and one-third millions of bacteria per cubic centimeter; with one-third grain the number rises to more than seven millions, and with little more than a half grain it rises to nearly thirteen millions. From quantitative determinations of the amount of stable dirt in many samples of milk, it has been estimated that Berlin consumes every day no less than three hundred pounds of cow dung with its milk, and what is true of the Berlin supply is probably applicable to that of any large community.

Some years ago, I made a tour of inspection among the nearby dairies which sent their product into Boston, those within the city limits having already been inspected and kept in order by our efficient Board of Health. The conditions found to obtain were, in many instances, about as insanitary as can be imagined. Filthy barns, occupied by filthy cows which were milked by filthy men, were the rule rather than the exception. In many of them, the cans stood on the manure piles, ready for filling; the stoppers were in boxes or baskets, or in piles on the floor. Farther away, in the less thickly settled districts, the conditions found were incomparably better, but at the same time there was much room for improvement.

If the conditions which exist in the country can be changed for the better, much of the problem of securing a clean supply for the consumer is disposed of; but not all, for we still have to deal with the middleman and the retail shopkeeper, whose storage facilities are not always, or even usually, of the best.

Shortly after my tour among the dairies, our Board of Health established certain regulations concerning the production, storage and sale of milk. Blanks were printed to be filled out by the milk producers, setting forth the cubic air-space per cow, the general conditions of the barns, the location of manure pits, milk rooms, privies, etc., etc., and such other information as was relevant. The milk contractors were asked how many of these blanks each would require for the districts covered by their contracts, and they were directed to have them filled out and returned. The number necessary was found to be upwards of five thousand, and when it is stated that the dairies are scattered over a territory which includes parts of all six of the New England

States, it may readily be understood that official verification of all of the returns is absolutely beyond the bounds of possibility. With few exceptions, the reports showed an amazing unanimity in recording excellent sanitary conditions; but each producer was doubtless the judge of his own premises. It was evident that no good could come from this course of investigation and the project of requiring annual reports fell into abeyance.

But within our own territory rules could be framed and enforced, and each applicant for a retailer's license was subjected to an examination concerning the condition of his premises and his facilities for proper storage. Before a license was issued, his answers, if favorable, were verified. If they were unfavorable or if found to be untrue, the license was refused. This plan has been followed up to the present time, and if a shop is found to be in an unsanitary condition or the dealer violates the regulations concerning storage, the license is revoked.

But still we do not, and, under present conditions, we cannot have clean milk, and further and more strict regulations are now under consideration and will shortly be promulgated. We cannot hope to educate the producer and the retailer by ordinary means, but we may succeed in education through the pocket. A reasonable bacterial standard will be established and milk not conforming thereto will be barred from the market. The producer or retailer who finds that his milk is contraband, will, it is thought, take the necessary steps to make his merchandise salable and gradually the question of cleanliness will be solved.

III. THE CONTAMINATION OF MILK.

By ROWLAND G. FREEMAN, M.D.,

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[Dr. Freeman exhibited stereopticon views which he described as follows. His lecture was arranged for a general audience, and it is not practicable or necessary to reproduce the illustrations in a technical journal. His remarks were suggestive and are well worthy of publication in the ANNALS *and the attention of physicians.]*

The quality of the milk supply in any community is of vastly more interest to the physicians of the community than to any other class. These physicians have to feed their patients largely on milk. The physician is accountable for the welfare of these infants and adult patients, and unless he can be assured of a pure milk supply for the feeding of the children and invalids under his care the results are uncertain and often serious. It is therefore of the greatest importance to physicians, and particularly to those who make a specialty of the care of babies, that they have at their disposal a pure milk supply. This movement for dairy hygiene, due largely to the men who make a specialty of pediatrics, has been brought about in the first place through the milk commissions. A great deal of course is due to dairy experts, and especially to Professors Pierson and Conn and Russell, but to the medical profession we owe most, and especially to Dr. Coit, of Newark and Dr. Rotch, of Boston, through whose efforts the Walker-Gordon Laboratory Company was organized.

The very large bacterial content of ordinary commercial milk and the high mortality of infants fed on such milk gave rise to a demand for clean milk, which was further emphasized when it was found that by simply sterilizing the milk the mortality of infants was materially reduced. The infant mortality caused by summer diarrhoea in New York has been reduced over fifty per cent. since the general sterilization of milk has been undertaken. These facts have led some to ask, why should we sterilize dirty milk, why not have clean milk? This is a proper demand, but it is most difficult to comply with this. We have no dairy routine that is at the present time practicable that will give us milk free from bacteria, and for this reason the sterilization of milk for infant feeding still seems desirable.

The bacteria that occur in milk are of two classes; in the first place the ordinary air bacteria which are the ordinary bacteria of milk. These are not harmful to healthy persons but are found to cause irritation in infants and sick people. The bacteria get into the milk in a number of ways, most often from the dropping of dust and dirt from the belly and udder of the cow. Some are washed in from the hands of the milkmen and from the teats of the cow. Some fall in from the clothes of the milkmen. Others get into the milk from unclean utensils. Again when milk is not cooled rapidly there is a large increase in bacteria through reproduction.

In the lantern slides I shall show a number of photographs of Petri plates. These plates are sterilized so that they contain no bacteria. When we wish to determine how many bacteria a specimen of milk contains we mix a measured amount thoroughly with some sterile culture medium, and this sterile mixture we pour into one of the plates and when it becomes cool it forms a solid mass on the bottom of the plate. We have then a sterile medium and the only bacteria present are those in the milk. These multiply, forming what are called colonies, which we can count, ascertaining approximately the number of living bacteria in the milk. To ascertain the number of bacteria in the air we may remove the cover of one of these sterile plates containing sterile culture media for a certain period and later count the number of colonies of bacteria that appear in the plate.

The first slide is to give an idea of the very large area which supplies the milk of our large cities. The supply of New York City comes from five states and from the uttermost limit of New York. Westchester county supplies considerably less than Oneida. Even Jefferson county supplies two thousand two hundred quarts a day to New York City. Now this milk which comes from these distant places is twenty-four hours in transportation. It leaves these places one night, reaches New York the next night and is delivered in New York the second day. The milk that is delivered in New York bottled comes mostly in the bottles and is not manipulated in New York City.

The next picture shows the territory which supplies Boston with milk, and you will see that it is adjacent to the territory which supplies New York. In Boston they have a higher standard than in New York, requiring four per cent. of fat. This high standard has resulted in the fact that nearly all the milk there is brought in by five companies and mixed in vats, and thus the poorer milk is brought up to the standard. I am rather inclined to think it is a disadvantage, because every manipulation which milk undergoes is apt to increase the number of bacteria it contains.

Here is a picture intended to represent what milk looks like under the microscope. You see these little fat globules everywhere.

There are a great many varieties of bacteria in milk, and this sort here is the streptococcus, which occurs not uncommonly in milk. It is the cause of an udder disease, garget, in cows which is very common.

Here we have a photograph of the diphtheria bacillus, an organism which has caused by its presence in milk a number of very serious epidemics. In one instance a number of cases occurred among those using the milk from a certain dairy and when they came to examine the workmen none of the men were sick, but on taking cultures from their throats they found two whose throats contained diphtheria bacilli and it was found that these men were engaged in washing bottles which had been brought from houses where there was contagious disease. Whether these men had gotten the bacilli from these bottles or not was not known, but it seemed to make a possible chain of evidence.

Here is a photograph of some cholera bacilli. There has been one quite serious epidemic of cholera due to the cholera bacilli in milk. This occurred in India from diluting milk with water containing this organism.

The persistence of certain species of bacteria in the milk of some dairies is quite interesting. We have here some colonies from the milk of one dairy and every sample for ten years has contained these bacteria.

The organism in milk that has probably caused more disease than any other is this one, the typhoid bacillus. There has been a large number of very serious epidemics of typhoid due to the presence of this organism in the milk. One of the worst occurred in Stamford, Connecticut, in 1894. There were three hundred and eighty-six cases and all but ten among the customers of one milkman, and this chart shows the route of the milkman in purple, the red dots being the houses in which the typhoid occurred. It is interesting to note how these cases of typhoid fever occurred only along this milkman's route.

Here is a picture of a healthy robust cow, which I show only as a contrast to the next picture, which shows a cow in the last stages of tuberculosis. This tuberculosis in cows we believe to be one of the greatest dangers in ordinary commercial or raw milk. Most authorities in this country feel that tuberculosis in cattle is a great danger to the human race

Here we have a photograph of some of the tubercle bacilli taken in sputum.

In connection with this matter of tuberculosis a very interesting experiment was undertaken by Dr. Pierson, of Philadelphia. He fitted up two stables in the University Veterinary School to show the contagiousness of tuberculosis in cattle under different conditions. In this stable here he placed six cows, two of which had tuberculosis and four of which were healthy. This stable had only three thousand cubic feet of air space and few windows and was in every way a very unhygienic stable. The next picture shows a clean stable. This stable had nine thousand cubic feet of air space and plenty of light and was kept scrupulously clean. He found after seven months that the four healthy animals put in the dirty stable all had tuberculosis of a fairly advanced stage, whereas in the clean stable only two of the cows showed any tuberculosis and that in a very mild degree. This experiment shows the great importance of cleanliness and fresh air and light in overcoming this tendency to tuberculosis.

This picture is taken to show the very unfavorable position of the udder in the matter of getting clean milk, the udder being placed underneath the cow and in such a position that when the cow lies down the udder is against the ground, so that when the udder is shaken in milking a considerable amount of dirt falls from it as is shown in this picture. This plate was exposed out of doors, this one in the barn and this one under the cow. The one exposed out of doors showed only six bacteria, the one exposed in the barn showed a little over one hundred and the one under the cow showed one thousand eight hundred.

Here we have the ordinary milk pail, which is a pail with a very large opening. You will notice that the opening is some twelve inches in diameter and perhaps more. That gives ample space for all this dirt from the udder that is shaken off during milking to fall into it. That such a large opening in the pail is unnecessary is demonstrated by such a picture as this, where an expert milkman is milking into the mouth of a cat. This suggests the possibility of milking right into the bottles in which the milk is delivered. The reason this is not feasible is because the first milk is very poor and the last very rich so that some customers would get poor milk and others almost all cream.

Here you see specimens of the very first milk and the very last, the latter showing about one-third cream.

In order to diminish this contamination of milk a number of experiments have been made with different kinds of pails. Here is a milk pail that is used on one farm and which has been copied considerably in other places. It is a pail with an opening looking upward which is about eight inches in diameter and which has a strainer in it. The man who contrived that had an erroneous idea that the foam which formed on the strainer might filter out some bacteria. This I believe is a very bad pail because the opening looks upward. A good pail ought to have the opening looking sideways as much as possible instead of upward. Here is a pail that was tried in which there are two very small openings. This pail, however, was not found to be practicable. The ideal pail is a pail of some such sort as this with the opening looking outward. These pails were found impracticable because they were too large and awkward for the men to use. The pail that I believe now to be the best pail is something like this. It is an ordinary eight to ten quart pail and on this we have made little hoods. The men, in using these pails, hold them so that this hood is slanted and there is little chance for perpendicular droppings. This seems to be altogether the best pail and eliminates a considerable amount of contamination.

Another source of contamination to milk is from the udder of the cow. The udder of the cow has very large ducts in it and it is on account of these large spaces probably that we get this poor milk at first and the richer milk afterwards. Some contamination with bacteria from the udder is very common, but the greater part of the contamination comes from the lower part of the milk ducts, there being less from the upper part. In a considerable number of experiments I have found that the cows that show the largest contamination are the ones with leaky teats, that is, teats from which some milk escapes when the udder is full before milking.

We have here a set of plates showing how this contamination of the udder persists even to the last milk. These are from the milk of a cow that had a leaky teat. Here we have a great many bacteria in the milk from the first squeeze of the teats and a diminishing number from the tenth, twentieth and thirtieth squeeze and very few from the fortieth.

This is a picture taken to show what wet milking is. It is a common practice in many dairies for the milkman after he gets his pail in place to lubricate his hands by milking first into the palm of one hand and then into the palm of the other. That forms a greasy material which perhaps causes less irritation of the teat but results in a serious contamination of the milk. It washes the dirt both from the milker's hands and from the teat of the cow into the milk pail.

One of the most dangerous sources of disease in milk is a bad water supply, and we have here a picture of the ordinary farmyard with the manure all about and the well beneath the yard. Such wells are of course in great danger of contamination. Here we have a picture showing how this contamination takes place.

Here is a well on a farm that was a great nuisance to everybody concerned. It was close to a dairy building and shed and near a public road. This was the farm of a milkman. The man was perfectly willing to put in a great many modern improvements, but we could not get him to do anything with this well. Fortunately, however, his business got so large that this well ran dry and he was compelled to put in a driven well.

Here is a well that I think is an absolutely ideal well. We wanted to have these people put in a driven well, but they were afraid they would not get water enough and wanted a dug well. To protect the water the well was cemented inside and outside, the well was covered and a fence built around it and the gate kept locked and in this little box was kept a pair of overshoes which the men put on before they went inside so as not to track any manure in.

This plate shows the necessity of keeping milk cool. In addition to careful handling it is necessary to keep milk cool in order to prevent the multiplication of the bacteria in it. In this case four test tubes from the same milk were prepared and left for twenty-four hours at a temperature of forty-five degrees, fifty degrees, fifty-five degrees and sixty degrees. You see the comparatively small growth of bacteria in this sample at forty-five degrees, but when we come to the warmer temperatures we find a very considerable growth.

This plate here shows the change that takes place in milk with the rising of the cream, a matter of considerable importance. When cream rises from milk it carries with it a large proportion of the bacteria in the milk.

Here we have a specimen of mixed milk, and here is a specimen of the lower milk and the risen cream. Almost all the bacteria in this bottle of milk were in the cream, showing the great necessity of sterilizing the cream.

Here is a picture of the work at a milking house. This shows a room in the basement where the men all wash their hands before going up to do the milking.

This picture represents the method this man had of transferring his pails of milk from the barn to the building where it was bottled. He had an overhead trolley and these large cans by means of a windlass were run down to the dairy building. It is very desirable to get the milk to the cooler as soon as possible. Here is a picture of the bottling room. Here is the sterilizer.

Here is a picture of the Walker-Gordon dairy at Plainsboro, N. J., when it was first started several years ago with three cow stables and a dairy building. It has been considerably changed since.

The next picture I took there about a week ago and shows the growth of this plant. There are now seven cow stables. Here is a picture of one of the stables. These stables have a row of windows and over each window is a ventilator. The result is that in these stables there is very little animal odor and plenty of fresh air.

This picture is taken to show one great difficulty in this dairy routine; that was the problem of keeping the cows clean after they were groomed. As soon as the cows were groomed they were in the habit of lying down. It was very difficult to persuade the dairymen to hire boys to keep the cattle up. An ingenious laborer at one farm devised a method of keeping the cows standing by means of these chains which are hooked across the stanchion under the cows necks before they are groomed. It is simple, inexpensive and effective.

This picture shows an arrangement for carrying off the manure by an overhead railroad. It is immediately distributed on the soil so that there is no manure pile on the place.

The practical question, what good does all this do? may be answered to some extent from this set of plates. For several years I had milk sent to me which was milked into the bottles. This lower plate shows some of that special milk which was sent to me at that time. The plates were planted from milk from certain farms and from some of the large New York supplies and the middle one from ordinary grocery milk. It is notable that the milk from single farms contains few bacteria, while the larger bought up supplies contain a great many.

In visiting the farm of a gentleman who is a college graduate I found that he had installed a sterilizer and was sterilizing all his utensils very carefully, but after sterilization they were set out to sun by a dusty roadside, thus affording opportunity for contamination and eliminating all possibility of getting clean milk. This milk contained only six thousand bacteria when it left the cow. Each manipulation added a great many so that in the milking room one hundred and seventy thousand were present.

An ingenious Irish gentleman has devised a patent milker known as the Thistle milker. By means of this he proposes to milk by exhaust. The way it is worked you will see in the next picture. This was found impracticable because of the impossibility of keeping it clean.

This is a picture of the Straus Milk Laboratory in New York.

These plates show what happens from the pasteurization of milk. The pasteurization of milk usually makes a plate that shows no colonies in one day, but in about ten days you can usually get a number of colonies.

IV. DISCUSSION

Dr. Craig:

Mr. President:

It seems to me like spoiling the flavor of a superior dish to endeavor to further season the remarks of the gentlemen who have preceded me with any discussion. I want a minute, however, in which to express my sense of personal pleasure in listening to the able papers which have been presented here to-night on the subject of clean milk, and to commend the practical suggestions made in these papers. The gentlemen who have just spoken are not strangers to us. We have learned of the labors of Dr. Pierce and Dr. Freeman through their communications to the public in the technical press. And Professor Harrington has given us a standard work which he has aptly called "Practical Hygiene," and to which we turn with a feeling of confidence, whenever we are in perplexity as to any detail of sanitary procedure. This book is so practically helpful to us that when we want to know what a proper standard of milk fat should be or what the significance of the solid constituents of milk is, we have only to turn over the pages of his book to find the standards adopted by the most competent authorities.

I regret that there is so little time remaining to us for the discussion of these papers, much as I should like to do so. Two things, however, I would like to say in a merely suggestive way. One of them is this: It is often asked why it is that milk is the food particularly selected for investigation and for all this agitation, and why it is that committees of county societies and agriculturists and public spirited citizens go before the public in an endeavor to arouse public sentiment under the influence of which there will result an improved milk supply? Why are not other forms of food selected also? Everything that we eat, the air we breathe, the water that we drink, has more or less contamination of one kind or another, some of which contamination is, at times, harmful to the human organism. An enlightened public sentiment is now demanding healthful water supplies in all the communities of the state. And aside from this, almost all forms of food are eaten in a cooked condition, the bacterial contamination being destroyed during the process of preparation. But with milk the conditions are different. Milk is usually taken in a raw condition, particularly by infants, so that it is a matter of supreme necessity that the milk should be of a high grade of purity. It is particularly because of the importance of pure and clean milk as an infant food that this subject is now emphasized. In fact, until very recently the question of milk supply has been neglected. There is some difference of opinion as to whether the pasteurization of milk or its sterilization is a good thing so far as pubilc health is concerned, particularly for the preparation of milk for the babies' stomachs. Very many physicians of reputation think it is not. It is easy to see, therefore, that it is a matter of great importance that the milk standard be high or public health suffers. A pure milk means a lessened infant mortality.

The other suggestion is this: There is abundant experience to prove that a public health officer, who goes out to execute some arbitrary law in a purely arbitrary way in opposition to public sentiment and against its business interests, is going to meet with disaster. Professor Harrington speaks with great authority upon this matter, and I do not know how he could speak with such accuracy unless he has had much experience in dealing with the public in the execution of law. There is a small class of reformers who expect to cure all human ills by appealing to the legislature for the passage of arbitrary law, after the passage of which they expect some public official to go out in the same arbitrary way and execute that law whether it is in the matter of milk or any other article of food or in connection with any other public measures. Such means of correcting prevailing customs, however injurious to the public interests and health they may be, are doomed, in my opinion, to fail. I wish to emphasize the remarks of one of the speakers of this evening, that "it is necessary for any public official to have public opinion behind every important public movement, and that without it no execution of the law can be permanently successful." I do not wish to be understood as saying that law and arbitrary law is not useful in the institution of public reform. Such law is indispensable to the carrying into execution of sanitary or other measures. I do wish to be understood as saying, however, that an appeal to such law without public sentiment behind it is rarely successful, for any length of time, in producing lasting reforms.

By way of illustration, I wish to say that it was my pleasure two or three years ago to deliver a lecture in connection with a postgraduate summer course carried on in the Albany Hospital. The subject of this lecture was "Modern Methods of Quarantine," and in the lecture, among other things, a system of postal card certificate returns for the contagious diseases, scarlet fever and diphtheria, which had been introducd into Albany and accepted by the profession of this city and found to work admirably in producing a diminution of contagious diseases, was recommended for general adoption. As a result of this recommendation, such rules were put into execution in several near-by localities. There has been no question, in my mind, that the mortality of these contagious diseases has been remarkably diminished by this method of maintaining quarantine. After a period of time this system, adopted and carried into execution in these places, failed longer to meet with the approval of the public, with the consequence that this method had to be abandoned. The necessary public opinion was not behind the public officer, and a seemingly wise sanitary measure had to be abandoned. A favoring public opinion must be regarded as a necessity to any successful movement looking to providing pure milk for the public. In the incidental discussion of this matter with Dr. Shaw, whose labors, together with those of Dr. Boyd, the chairman of the committee, and Dr. Pearce, are certainly to be favorably commended, it was considered wise not to attempt the prosecution of men who were furnishing a low standard of milk to the public but rather to seek, through an enlightened public sentiment, the creation of a demand for good milk from those who were willing to furnish a high standard of this commodity. The result has been to increase the amount of good milk consumed in Albany. I think this is one of a number of factors that has been at work in producing the constantly diminishing death rate in this city for the last three, four or five years.

To sum up my ideas as to the conditions necessary to provide a better milk supply for cities, the more practical points have seemed to me to be that we must deal with this subject on the one hand from a commercial standpoint and upon the other in accordance with the dictates of charity.

In the first place, this matter of the supply of pure milk must be reduced to a commercial basis, after which an enlightened and educated public sentiment will purchase only such high grade milk, and competition will quickly dispose of all inferior milk supplies. At the same time the public officer will then be in a stronger position to materially assist in the permanent purification of this most important article of daily food consumption. Even now capital is becoming directed towards this end, and in several places the public are, as a matter of business, offered a high grade of milk at the prevailing price. Capital so invested will be sedulous in guarding its own interests and in limiting competition in milk below reasonable standards. It is easier to control a single milk station with proprietary interests in the municipality than to inspect and properly regulate the standard for a very large number of individual dealers each of whom has a source of milk, at all times, many miles from the place of consumption. This so-called "trust" milk must compete in price and quality with the ordinary milk that has heretofore been delivered to the public, and in this way only, I believe, can we succeed in having a properly standardized milk eventually adopted for public use.

The other method of supplying standardized milk is through charitable organizations. This method, of course, is applicable only among the very poor and must be limited to organizations supplying real necessities of life to indigent persons. The larger death rate from diarrhoeal diseases, druing the hot summer months, occurs naturally among neglected children fed on unclean and impure milk. A large field of usefulness is therefore open to those organizations in supplying so great a necessity to these needy people. Such needs can be supplied at a limited expense. The various charitable organizations in this city are recommended to open milk stations where a clean and high standard milk can be supplied to the poor at a minimum of cost. And in connection therewith, schools of instruction should be arranged in which the care of milk, particularly for infants, should be thoroughly taught in a practical way.

I have been much interested in this subject of standardized milk and should like to discuss this question more at length, but the time is necessarily limited, and I simply mention these few things by way of suggestion.

DR. VANDER VEER:

The meeting this evening has been a great source of gratitude on my part, as I have observed the advances made, and interest taken in the subject of milk supply for our large cities.

I remember very well the illustrations in Frank Leslie's for 1857, '58 and '59, when the subject of "swill-fed cows" was under consideration, and there was a great deal of agitation at that time regarding the milk furnished to New York and Brooklyn.

In the course of this investigation it was very clearly demonstrated that this milk contained the germs of disease, and it was believed that tuberculosis was spread, as the result of the use of the milk from such fed cows. The final verdict was the closing of such establishments, but the subject attracted a good deal of attention at the time and its discussion resulted in much improvement as regards milk supplies. Then the war came on, and as we very well know, little more was said upon the subject until the past twenty years, in which time we have seen much progressive improvement.

I served for some ten years on the local board of health here, and I remember very distinctly our efforts to locate the cause and source of some cases of typhoid fever in different parts of the city, which we believed were due to the milk supply. At last we found a milk man who had a daughter sick in the house with typhoid fever. The closet in which the stools, etc., were emptied, was not very far from the well, drainage into the water supply took place, the milk cans washed in this water, and the cause of the infection was exceedingly clear. Other cases developed in this family, but the milkman was very prompt in making a change in the water used, and his route became healthy soon after.

I have watched this whole subject, listened to the discussions, read the papers upon the subject of pasteurization of milk, which I am inclined to think the consensus of opinion is now against, though of course I have not given the subject the attention that the gentlemen who have read these papers have given to investigations along these lines. I remember with much satisfaction an honest milkman who came to me one time and said, "I have two children sick with diphtheria; what must I do?" He was advised to take the children to the hospital, which he did, and given directions as to the care of milk vehicles, etc., and I am sure no serious results followed. I believe there are many milkmen who are equally anxious to do the right thing, but need some instruction, and I am sure great good will result from the efforts made by our committee in the direction of affording the necessary information. We have great reason to be thankful for the work of this evening. Public opinion must be consulted and when once thoroughly informed will do a great deal towards eliminating the source of adulterated and contaminated milk. We owe a vote of thanks to the chairman of the committee on milk supply, who, with the officers of the society have been so fortunate as to bring to us to-night such very able speakers, and whose papers have been so exceedingly instructive.

I move a vote of thanks be given these gentlemen from out of town as a recognition of our appreciation of their valuable papers.

DR. COOK:

I do not rise for the purpose of attempting to add anything to what has been said this evening. I have been very highly entertained and have learned much. I probably occupy the unique position of being the only member of the medical fraternity in Albany that is a milk producer and therefore necessarily more or less interested. There have been a number of things said that if reasoned from the milk producer's standpoint would probably carry a different idea. One of the speakers started out by saying that he was going to speak from the producer's standpoint. He made the remark that certain reforms could be carried on in certain dairies with an expense of not more than half a cent to a cent and a half a quart additional. When I say to this audience that up to the last year or year and a half, owing to the failure of the cereal crop in the west, lots of milk came to the city of Albany in the summer time at a cent and a half a quart; when you understand that the wholesaler buys his milk at one and one-half cents a quart, you will realize the necessity for the producer to economize in every way in order to carry along his dairy and make ends meet.

For six years previous to the change in the charter for second class cities I was a member of the local board of health, and during that time we attempted to regulate the sale of milk in the city of Albany under restrictions that improved its quality very much, and we made rules and regulations whereby the milkmen taking out a license were made to conform to certain rules that we had established for the sale of milk in the city of Albany, with the penalty if they failed to comply with those rules of having the license revoked. We attempted at that time to bring about a test for tuberculosis but it was a failure, and I was in hopes that the Deputy Commissioner of Agriculture in his remarks to-night would bring up the subject of tuberculosis, and explain the law as it now stands and also as it stood previous to the enactment of last winter. In the first place I presume you are aware of the fact that a very large proportion of cattle in the State of New York is contaminated and the laws as recently amended are still very lax on that question. Albany was a dumping ground to a certain extent through its West Albany connections, for a great many cattle infected with tuberculosis that were not allowed to pass into neighboring states. I know that one of the requirements enforced by adjoining states before they could cross the line was that they must stand the tuberculosis test. We did not have, up to last spring, any test of that kind in the State of New York, and while some physicians hold that there is a difference in the tuberculosis bacilli in the human being, I think the general trend of the profession is to believe that they are communicable. Now if that is a fact, one of the first things that we ought to look to in the State of New York is to get the cattle in our State on a healthy basis. Certainly we can not expect healthy milk from diseased cattle. My theory of pure milk is something like this: First a healthy cow; then proper surroundings; then a clean stable with a proper amount of air space; then a healthy attendant; then clean utensils; then as soon as the milking is completed the milk to be reduced to a certain temperature and held at that temperature till shipped. It should come to the middle man in a condition where it has not been allowed to undergo any bateriologial change. Then it should go into a room at a certain temperature, bottled at a certain temperature and kept at that temperature till it is delivered to the consumer. Then the consumer should be educated up to the standpoint that it should be kept at a certain temperature till it is used. In that way we might have better milk, practically free from bacteria.

The question to the producer of clean milk is a great one. Where a man is running his own farm and often doing his own work, the milk can be kept almost free from any liability of excessive contamination. But the larger your herd, the more help you have to employ, the more difficult you are going to find it. I think it has been demonstrated that with a small herd you can do it, but with a large herd you cannot get down to the lower standard of bacteriological contamination. The question of a demand for pure milk is one that the public has to be educated up to. It is utterly impossible to-day to sell milk for much more than the price asked by the ordinary milk man. If you ask more you can not sell it. When it comes to making a success of a large dairy by putting it on higher grounds, I do not believe that Albany is yet educated up to a demand for it. It is probably the work of some years and the effort is a grand one, but till the milkmen can make it pay they are certainly not going to do it out of their own pockets. When the people demand it they will get it.

The question of a high standard of milk involves to a certain extent the question of different breeds of cattle. In the great milkers, the Holsteins and Ayershires, the fat is not as high as four per cent., while the cattle who have their origin in the islands, like the Guernseys and Jerseys, give a richer milk but are to a greater extent predisposed to tuberculosis. At the time I was in the Board of Health we were fortunate enough to get Dr. William H. Kelley, veterinarian, Department of Agriculture, to join in with us and examine some herds, and we found in the very first herd examined two or three head of tubercular infected cattle. From time to time some of the best herds in the country, owned by prominent people, have been tested and because of their tubercular condition practically exterminated. There are very few herds of any extent that would stand the test if examined for tuberculosis. The one fact that deters the State from weeding out tuberculosis is that there is an immense amount of money invested in the dairy business and the State feels that it should bear a large portion of the expense of this money invested in the cattle destroyed and that amount would be so large that it has kept this subject in the background. I remember a few years ago the State attempted to raise the standard and in the Orange county district they objected that they could not stand it. You want to start first with healthy cattle in order to get pure milk and then care for it.

Editorial

The fearsome Old Woman was taken ill:
She sent for the Doctor—he sent her a pill,
And by way of a trial,
A two-shilling phial
Of queer-looking fluid, like lava diluted,
To which I've profess'd an abhorrence most rooted,—
One of those draughts they so commonly send us,
Labell'd *"Haustus catharticus, mane sumendus;"*—
She made a wry face,
And without saying grace,
Toss'd it off like a dram—it improved not her case.
—The Leech came again;
He now open'd a vein,
Still the little Old Woman continued in pain.
So her "Medical Man," although loth to distress her,
Conceived it high time that her Father Confessor
Should be sent for to shrive, and assoilzie, and bless her.

RICHARD HARRIS BARHAM.
The Ingoldsby Legends.

THE ALBANY HOSPITAL.

Mr. McCredie's Resignation

At the Annual Meeting of the Board of Governors of the Albany Hospital, held on the fourteenth day of February, Mr. James McCredie announced his determination to decline a re-election to the Presidency of the Board, and Mr. J. Townsend Lansing, who, as Vice-President for several years has become familiar with the details of management and has been active and interested in the hospital, was wisely chosen to fill the vacancy. Mr. Charles R. Knowles was elected Vice-President, and will continue to act as Treasurer until his successor is appointed, and Mr. Gustavus Michaelis was re-elected Secretary, and Mr. Dudley Olcott, Treasurer of the Endowment Fund.

The sentiment of the Board upon the withdrawal of Mr. McCredie was expressed in the following resolution:

> *Resolved*, That the Board of Governors regret very much that their President, James McCredie, has declined positively to accept a re-election. Mr. McCredie has held the office for many years during which time the new buildings of the Hospital have been erected and the work of the Hospital has grown to its present large extent. Through all this period he has devoted his time most faithfully to the interests of the Hospital and has constantly given to those interests his best energy and ability. To him has been largely due the success of the Hospital and the continued favor it has received from our citizens.
>
> Our own association with Mr. McCredie at the meetings of the Board and elsewhere has always been most pleasant, and in leaving the office which he so long adorned he takes our high esteem and our cordial friendship. We hope that he will continue as one of our number to aid us with his good sense and active interest.

Mr. McCredie's connection with the institution began in January, 1892, when he succeeded to the place for many years actively and honorably filled by his father. In November of the same year he was elected Secretary, and in February, 1896, President of the Board. With the possible exception of the first period of organization of the hospital, beginning in 1849, his term has been the most important in its history. The public at large and the majority of the physicians of Albany probably have little conception of the epoch-making character of these eight years. The old hospital was intended for the relief of persons unable, under the stress of sickness, to provide for wants which in health were no burden. There was some provision for surgery and there were a few private rooms at moderate rates, but surgical operations in that day were much simpler than now, required practically no apparatus except the instruments actually in use, and could be as well done in the home as in the hospital.

The modern conception of a hospital as a place of healing in the highest sense, with all the appliances and conveniences for the management of every form of disease was of recent growth, and accepted at that time in only a few institutions of the larger cities. It was not anticipated that the construction of the new hospital was more than an abandonment of an out-of-date building to meet an ill-understood increasing demand. It soon became evident that this demand did not stop short of perfection. Upon the occupation of the new buildings it was found that the requirements of modern medicine and surgery were such that the resources of the private house, no matter how abundant, were inadequate. The hospital, instead of being a charitable institution for the relief of the indigent, has become the center of medical skill of the community, in which social distinctions were to be cast aside in the pursuit of health common to rich and poor alike. To meet this want the labor has been enormous, and the Governors, formerly to a large extent, an honorary body, have had to meet problems in the consideration of which they have been transformed into an executive body with great responsibilities. To their prompt and effective recognition of this new situation may be attributed the high place already taken by the hospital among institutions of its kind.

No one would wish to make invidious distinctions as to the individual efforts of the Board, but the occasion of Mr. McCredie's resignation is a fitting time for review of the affairs of the hospital and of his connection with them. Taking time from his occupation as an officer of a large corporation, he has made at least one weekly inspection of the plant and has attended one weekly meeting of the Executive Committee. Every detail of hospital management, from the tough steak sent from the kitchen to the organization of the staff, has been presented for his consideration. He has been accosted in his office and on the street, in the theatre and in church, and has been called from his meals and from bed, to listen to complaints and suggestions. Most men turn impatiently away from the individual with a grievance; others listen, perhaps sympathetically; only a few listen and help. The ex-President belongs to this minority class, and from each complaint has taken something to heart for the betterment of the hospital and the benefit of his neighbors. His resignation is received with regret. Albany and its hospital are fortunate that he consents to remain upon the Board of Governors and the Executive Committee.

It may now be said that the function of the hospital as the restorer of health for all classes of people has been established, and that the duties of its executive will grow regularly lighter. Its wide scope has been recognized by the Governors and the burden assumed. This was strikingly shown by their recent action in the matter of appointments to the medical staff, when they insisted that nominations of the best available men should be made.

It is very desirable that the Albany hospital should retain its pre-eminent position. There are still defects, but these are fewer every year. Their eradication depends upon an aggressive and energetic management, and under the impetus of the administration just closed, and with the same personnel of the Board, there may be expected an ultimate realization of ideals.

Dr. Vander Veer Appointed Surgeon-in-Chief

Among the changes in the staff of the hospital, recorded in another page, attention will be at once attracted to the appointment of Dr. Vander Veer as Surgeon-in-Chief. Recognition of prolonged and acceptable service to the hospital has usually been made by transfer to the Consulting Staff. The positions of the Consulting Staff are honorary and involve few active duties.

When Dr. Vander Veer announced his desire to retire as attending surgeon, the Governors felt at once that his interest and services must be retained, and created for him, at his pleasure, the new position, in recognition of his valuable, prolonged and most energetic connection. There is no other record of such long continuous duty in the surgical department of the hospital, and Dr. Vander Veer has well earned his release from routine duties in the wards. By the action taken the Governors retain his co-operation in the general management of the hospital, greater time will be given him for his operative and consultation work, and the friends of the hospital have the assurance that no change in his relations with the hospital has occurred.

Dr. William Hailes

It is with deep regret that the announcement of Dr. Hailes' retirement as attending surgeon to the hospital must be made. Dr. Hailes has been a most energetic member of the staff for about thirty years. His lack of perfect health prevents further participation in routine work and, at his request, he has been made a consulting surgeon. The transfer removes a strong personality and a vigorous surgeon from the daily life of the hospital.

Vox Et Praeterea Nihil

It has not been the custom of the ANNALS to direct attention to its own exploits or its own excellences. Indeed, with the exception of two or three occasions, when change in plan or in personnel seemed to demand some explanation, silence has been maintained, for the very good reason tersely expressed in the Latin language at the head of this article. Further than this there is the feeling that if the ANNALS displays any merit, it is not as a commercial enterprise to attract attention to itself, but is an evidence of the activity and loyalty to medical interests of its contributors. As a test of this altruistic purpose it was decided, at the beginning of its twenty-fifth year, to issue a jubilee number, which should celebrate, not the ANNALS, but the work of its writers and the advances of Albany medicine. This *festschrift* has been particularly well received. We adhere to our rule of silence regarding our work, but when others speak, we may pay them the highest compliment in the power of a periodisal, that of quotation. We salute our friends with exprescions of pleasure and esteem, and in publishing their kind words, may be pardoned the gratification that they have come from such high sources.

Dr. William Osler: Congratulations on your jubilee number. It is a great credit to you all.

Dr. Henry M. Hurd: Just a word to express my surprise and gratification at the jubilee number of the Albany ANNALS. The January number is so full of illustrations and good meat, I fear that you will spoil your subscribers and that they will clamor for such pie with every meal. Please, in the interests of other medical journals, give them strict oatmeal for many months to come, otherwise we may all become bankrupt in our efforts to keep pace with you.

Dr. Robert J. Kahn: I am sending the enclosed to you in order that I may at the same time congratulate you on the ANNALS for the past year, and especially the most excellent jubilee number.

Dr. John M. Griffin: I congratulate you on this number of the ANNALS, which ought really to be a source of great encouragement to the editors. It certainly is a gem.

Dr. Robert G. Cook: I congratulate you on the jubilee number of the ANNALS; it is fine.

Dr. Harry S. Pearse: It is one of the finest and most scientific numbers of any journal that has ever been published. It will do much toward enhancing the already enviable position which the men of Albany occupy in the medical world.

Kress and Owen Company: We wish to compliment you on the perfection of typographical work as is evidenced in this number, and also on the character of the papers printed.

The St. Louis Medical and Surgical Journal: We desire to congratulate, not only the editor, but all the gentlemen who took part in the issue of this truly royal number.

Medical Review of Reviews: It is a most excellent number.

The Boston Medical and Surgical Journal: The current number of the ALBANY MEDICAL ANNALS celebrates the beginning of the twenty-fifth year of this excellent periodical. A sketch of the history of this journal, founded in 1880, is given by Drs. F. C. Curtis and W. G. Tucker, in which the growth from small beginnings of a periodical, which is now representative of the medical work of its city, is briefly portrayed. The volume contains 208 pages, with a number of excellent articles. We congratulate the journal on this, the beginning of its twenty-fifth volume.

The Medical Record: The ALBANY MEDICAL ANNALS has celebrated its twenty-fifth anniversary by the publication of a "jubilee number." The issue is a notable one and reflects great credit on all concerned in its make-up. The articles therein contained are, with no exception, excellent, both in matter and composition. Drs. Frederic C. Curtis and Willis G. Tucker contribute a sketch of the inception and development of the journal. The first number of the ANNALS was sent out in 1880, the first editors and committee of publication being: Drs. F. C. Curtis, A Vander Veer, J. B. Stonehouse, Lorenzo Hale and J. D. Featherstonhaugh. Up to 1888 the ANNALS was conducted as a medical society journal when the Albany Medical Library and Journal Association was founded, and it passed into their hands. In 1891 the

ANNALS became a journal of the Alumni Association of the Albany Medical College, and as such has continued up to the present time. In 1897 the journal took on its present form.

As said before, the contributions to the jubilee number of the ALBANY MEDICAL ANNALS are exceptionally good, and prove that the medical college, in the past and present members of its staff, possesses writers of no ordinary ability. The ALBANY MEDICAL ANNALS has, in its twenty-five years of existence, amply justified the wisdom of its founders, and has shown that a local medical journal can be in its own sphere as useful and valuable as the national ones. Indeed the Albany publication enjoys now more than a local reputation, and may be termed one of the best monthly medical journals published anywhere.

The Cleveland Medical Journal: THE LATEST FESTSCHRIFT. The ALBANY MEDICAL ANNALS is to be congratulated upon the excellence of its January number. A special effort has been made to celebrate the twenty-fifth anniversary of the paper and the result has been most satisfactory. The different original articles show careful scientific work and will certainly act not only as a local stimulus but will have a more widespread effect. In all the cities of the land there are great possibilities in the way of contributions to our stock of medical knowledge. Quite often these remain latent and it is not every place that takes advantage of them. Albany has shown an activity in progressive medical work that some larger centers might do well to emulate. The ANNALS has our hearty wishes for an even greater measure of success and progress than it has already had in the past twenty-five years.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, JANUARY, 1904

It is again a matter of public interest to note the low death rate of the city for the month of January, 1904. There were 135 deaths as against 153 a year ago, and 140 the year before that. Beginning with the February report, comparison will be made between four years, but in the present comparison for the months of January for three years, the death rate this year is shown to be the smallest. The death rate was 15.88 as against 18.0 last year and 16.47 in 1902. The death rate this year less non-residents was 14.59.

A diminution in the number of deaths from consumption is to be noticed; fifteen this year as against thirty-three last year, and nineteen the year before that. There was only one death from typhoid fever and one death from diphtheria and croup.

If we consider the pneumonias and broncho-pneumonias together, there has been but a slight increase in the deaths from this class of diseases, this year.

Some comparisons from the bulletin of the New York State Department of Health for the month of December, 1903, furnishes us with some interesting facts concerning the sanitary conditions of the city of Albany. The zymotic deaths or deaths from contagious and communicable diseases are a most reliable indication of the healthfulness of the community.

	Death Rate	Zymotic deaths per 1000 deaths from all causes
Albany	16.8	35
Cohoes	18.6	110
Troy	18.8	40
City of New York	18.6	115
Borough of Brooklyn	18.1	100
Borough of Bronx	21.0	140
Poughkeepsie	30.0	80
Watertown	14.6	145
Amsterdam	10.0	115
Utica	21.0	80
Syracuse	14.5	50
Buffalo	15.0	120
Rochester	18.4	123

It will thus be seen, in comparison with other cities, that Albany had the lowest percentage of zymotic deaths during the month of December. In other words, deaths from diphtheria and scarlet fever, consumption and other diseases of this class are smaller in proportion to the entire number of deaths than any of the cities above enumerated.

For the years 1890-'91-'92 the average total number of deaths was 2.411. and for the years 1901-'02-'03 the average total number of deaths was 1,792. This rather remarkable fall in the death rate is somewhat difficult to explain. The decrease is about twenty-five per cent. Tables of deaths from various classes of diseases are now under course of preparation in the Health Department, with a view of ascertaining the relation of each class to the total deaths. The decrease of deaths from typhoid fever accounts for only two per cent., and the decrease from diphtheria deaths only about two per cent.; the diminished deaths from consumption accounts for a somewhat larger per cent. It is expected that a statement of percentages can be made in the course of the next month.

VITAL STATISTICS

Deaths

	1902	1903	1904
Consumption	19	33	15
Typhoid Fever	2	1	1
Scarlet Fever	0	2	0
Measles	0	0	0
Diphtheria and Croup	3	0	1
Grippe	0	3	2
Whooping-cough	0	4	0
Pneumonia	9	10	16
Broncho-pneumonia	3	6	3
Apoplexy	12	5	9
Bright's Disease	14	10	15
Cancer	6	8	8
Accidents and Violence	6	2	3
Under one year	10	21	20
Seventy years and over	31	29	29
Total deaths	140	153	135

Deaths in Institutions

	1902	1903	1904
Albany Hospital	8	8	15
Albany Orphan Asylum	1	1	2
County House	4	6	2
Homeopathic Hospital	5	0	2
Little Sisters of the Poor	1	2	3
Penitentiary	1	0	0
Public Places	2	1	0
Sacred Heart Convent	2	0	0
St. Margaret's House	0	2	1
St. Peter's Hospital	4	4	5
St. Vincent's Female Orphan Asylum	0	0	1

Death rate	16.47	18.00		15.88
Death rate this year less non-residents				14.59
Marriages				34
Births at term			96	
Premature births			1	
Still births			3	
			100	

WORK OF HEALTH PHYSICIANS

Total number of assignments made	102
Total number of calls made	403

INSPECTIONS

In the Bureau of Markets and Milk there were forty-five markets inspected, twenty milk peddlers, three hide houses, two commission houses, two slaughter houses. One hundred pounds of veal was condemned and destroyed, two pounds of chickens and ten pounds of bologna. Two tests of milk were made.

In the Bureau of Sanitation, there were thirty-two complaints made, of which two were of privies, nine of closets, three of drains, eleven of plumbing, one of water, one of filthy vacant lots, one of filthy premises, two of gas, one of a dog nuisance and one unclassified. There were fifty-one inspections made, and thirteen reinspections. Four complaints were found without cause, and thirteen on reinspection were found to have been abated. Fifteen notices were served, and seven legal notices, and six citations for a hearing.

In the Bureau of Plumbing, Drainage and Ventilation, there were ninety-four inspections made, of which sixty were of old buildings and thirty-four of new buildings. Seventeen iron drains were laid, two urinals were put in, twenty cesspools, twenty-four wash basins, twenty-two sinks, nineteen bath tubs, twelve wash trays, thirty-three tank closets. Fifty-eight permits were issued, of which fifty-three were for plumbing and five for building purposes. Ten plans were submitted to the department for approval, of which two were of old buildings and eight of new buildings. Twelve houses were tested on complaint with the peppermint test. Two water tests were made of buildings.

BUREAU OF CONTAGIOUS DISEASES

Cases Reported

	1902	1903	1904
Typhoid Fever	9	8	4
Scarlet Fever	5	9	5
Diphtheria and Croup	46	14	11
Chickenpox	5	12	5
Measles	12	10	1
Consumption	0	5	2
Total	77	58	28

It is customary in the Health Office to pin the location of cases of diphtheria, scarlet fever and typhoid fever, upon city maps, at such times as it is believed valuable information can be derived from this procedure. On Saturday, January 30th, this method of locating disease gave a total of six cases of diphtheria, three cases of scarlet fever and four cases of typhoid fever, then in the city. This is a remarkably small number for a city the size of Albany.

Fumigations:

Houses	43	Rooms	98

Number of days quarantine for diphtheria:

Longest	63	Shortest	6	Average	21½

Number of days quarantine for scarlet fever:

Longest	38	Shortest	7	Average	27+

ANTITOXIN

Cases of diphtheria in which antitoxin was used	9
Cases in which antitoxin was not used	2
Deaths after use of antitoxin	1

Death After Use of Antitoxin

The one death after use of antitoxin was a male, eight months old, antitoxin was used on third day, died on the fifth day.

BENDER LABORATORY REPORT

Cultures for Diphtheria

Initial positive	Initial negative	Release positive	Release negative
5	81	7	22
	Total	117	

Examination of Sputum for Tuberculosis

Positive	Negative
2	2
Total	4

NOTIFICATION OF TUBERCULOSIS

Dr. William Osler remarked before the joint meeting of the Maryland Public Health Association, the Medical and Chirurgical Faculty and the Lænnec Society, as follows, concerning his ideas of the treatment of pulmonary tuberculosis by the civil authorities:

Now, what is the remedy? It is simple. It is very easy. It is so simple and easy that we won't get it for a good many years. It is a sad thing to think of, but it will be five years yet before we get a law compelling notification of cases of tuberculosis to the Health Board of Baltimore. Yet we all know there should be notification and careful inspection in every single case. It works no hardship to have the Board of Health know that a case exists in the family, even in the best house at Mount Vernon place. It can be done quietly and easily, without placarding or making the patient feel that he is a social outcast. It can be done properly and easily under systematic management.

The *Medical Record* has always staunchly championed the cause of the consumptive, and of the needy consumptive in particular.

The notification of pulmonary tuberculosis—at any rate among the poorer classes, who live in close contiguity and are thus peculiarly subjected to the influences of the microbe—is a measure to be taken in the interest of public safety.

Sanatoriums for the treatment of consumptives alone have now decisively proved their worth, and the erection of such public institutions in the vicinity of every large city is an act of self-preservation on the part of its inhabitants.

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Medical Society of the County of Albany was held in the Masonic Temple, Cohoes, N. Y., on Wednesday evening, February 10th, 1904. About thirty members of the Medical Society of the County of Rensselaer attended this meeting and the following members of the Society: Drs. Archambault, J. L. Archibold, Babcock, Carey, Classen, Cook, Curtis, Featherstonhaugh, Furbeck, Goewey, Happel, Haynes, Hinman, Lempe, Lomax, Macdonald, MacFarlane, MacHarg, McGarrahan, Merrill, Mitchell, Moore, C. H., Moston, Munson Murray, Newman, Papen, Pease Peltier, Rooney, Root, Shaw, Stillman, Vander Veer, A., Vander Veer, E. A., Ward, Wiltsie, Witbeck and Winne.

The meeting was called to order at 9:20 P M. by the President, Dr. C. S. Merrill.

The Secretary read a letter from the Mayor of Cohoes in which he welcomed the members of the Medical Society of the County of Albany and regretted his inability to be present.

Dr. MacFarlane moved that the Secretary extend the thanks of the Society to Mayor Wilson for his kind letter.

1. *Reading of minutes of last regular meeting.* On motion of Dr. Neuman which was carried, the minutes as printed in the February ANNALS were accepted.

2. *Reading of minutes of special meetings.* No special meetings had been held.

3. *Application for membership.* No names were presented.

4. *Reception of reports and resolutions.*

Dr. ALBERT VANDER VEER stated that at the last meeting of the Medical Society of the State of New York an agreement for the consolidation of the Medical Society of the State of New York and the New York State Medical Association was unanimously approved. In order that this agreement be legal its ratification by the various county societies in affiliation with the State Society is necessary. For this purpose he offered the following resolution which was seconded and unanimously adopted:

FORM OF RATIFICATION AND CERTIFICATE THEREOF BY COUNTY MEDICAL SOCIETIES

Resolved, That the Medical Society of the County of Albany hereby ratifies, approves and adopts the agreement for the consolidation of the Medical Society of the State of New York and the New York State Medical Association which was unanimously approved and adopted at the annual meeting of the Medical Society of the State of New York held at Albany on January 26, 1904; and the Medical Society of the County of Albany hereby waives notice of an application to court for an order consolidating said corporations pursuant to the terms of said agreement, and hereby consents to the entry of such an order without notice; and be it further

Resolved, That the secretary of this meeting be, and he is hereby authorized and directed to send a copy of these resolutions, duly certified by the President and Secretary of the meeting, to the Secretary of the Medical Society of the State of New York, and to execute and deliver any and all waivers of notice of an application for such order as the court may require.

Dr. Root reported on behalf of the Legislative Committee. He paid particular attention to the optometry bill now before the legislature and explained many of its defects. Such legalizing small portions of the practice of medicine is opposed to the spirit of the Medical Act and is a decided step backward. In order to defeat this measure the Legislative Committee must have the active support of the medical profession.

Dr. Ward said it would be very unwise to let this bill pass and he offered the following resolutions:

Whereas, We have received information that a bill has been introduced in the legislature, legalizing the practice of optometry, and

Whereas, This practice is now legalized, as are all other practices relating to the care of the sick and distressed, by beneficient and equitable medical laws, and

Whereas, In our judgment it is impossible properly to prepare people to follow this or any branch of medical practice without injury to the community except after a thorough medical education, therefore,

Be it Resolved, That the Medical Society of the County of Albany desires to enter an emphatic protest against the passage of bills of this nature by the legislature, which are really efforts to evade the provisions of the Medical Practice Act.

These resolutions were seconded and unanimously carried.

The President said he thought this was a wise action as this was a dangerous bill.

Dr. Wiltse moved that the thanks of the Society be tendered to the Albany Institute and Historical Art Society for the use of their lecture room on January 13th.

This motion was seconded and carried.

Dr. Curtis rose to remind the members that the Society was fast approaching the end of its first century. The State Society appointed a committee over a year ago to prepare for its hundredth anniversary and Dr. Curtis did not think it was too early for the County Society to make preparations for an appropriate observance of this occasion. He therefore moved that a committee comprising the President, Vice-President and Secretary be appointed for the purpose of preparing for this celebration.

Dr. MacFarlane moved as an amendment that Dr. Curtis be included in this committee. The amendment was seconded and the motion as amended was passed unanimously.

5. *Reading of Papers.*

Dr. S. B. Ward read the paper prepared by Dr. J. D. Craig on "The Albany Filtration Plant and its Effect in Lessening the Mortality from Typhoid Fever."

At the close of Dr. Craig's paper the President called upon Professor Mason of the Rensselaer Polytechnic Institute to speak on the results of water filtration.

Drs. CURTIS, FEATHERSTONHAUGH and VANDER VEER took part in the general discussion of Dr. Craig's paper.

Dr. MITCHELL on behalf of the Cohoes members of the Society thanked the Albany members for their presence at this meeting and welcomed the many guests from Troy. He said that the physicians in Cohoes were endeavoring to enlist public sentiment in favor of a municipal water filter. This meeting and the remarks made in the discussion would greatly aid their cause and he moved a vote of thanks be extended to Drs. Craig, Ward and Mason. This motion was carried.

Dr. MACFARLANE moved that owing to the latness of the hour and in order to give an opportunity for social intercourse, the papers composing the "Symposium on the Stomach" be dispensed with.

Dr. VANDER VEER seconded the motion which was carried.

On motion of Dr. Root the meeting adjourned.

HENRY L. K. SHAW, *Secretary.*

C. S. MERRILL, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR JANUARY, 1904. Number of new cases, sixty-two. *Classification of cases:* District cases reported by health physicians, nine; charity cases reported by other physicians, thirty-one; patients of limited means, twenty; old cases still under treatment, thirty; total number under nursing care, ninety-two. *Classification of diseases (new cases):* medical, twenty-four; surgical, six; gynæcological, one; obstetrical, eighteen mothers and eleven infants under professional care; dental, two; transferred to hospitals, three; died, two.

Special Obstetrical Department: Head obstetrician and two attending obstetricians in charge of cases. Medical students in attendance, six; Guild nurses, six; number of cases, seven; number of visits by obstetricians, twenty-six; by medical students, forty; by Guild nurses, seventy-six; total number of visits for this department, 147.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, 745; for professional supervision of convalescents, 225; total for the month, 970. Cases were reported to the Guild by two health physicians and by sixteen other physicians, and two dentists.

The Guild has purchased the building formerly occupied by the Hospital for Incurables, on Madison avenue, which will be refitted and used for a home for its nurses. A lecture course has been arranged for the Guild nurses and nineteen of Albany's specialists will lecture on the various important subjects in general medicine, surgery and dentistry so that the Guild nurses may be even better prepared to handle their cases in a skillful manner.

CHANGES AT THE ALBANY HOSPITAL.—At a recent meeting of the Board of Governors of the Albany Hospital the following gentlemen were elected to fill office in that board for the following year: President, Mr. J. Townsend Lansing; vice-president, Mr. Charles R. Knowles; secretary, Mr. Gustavus Michaelis; treasurer, Mr. Charles R. Knowles; treasurer of endowment fund, Mr. Dudley Olcott; executive committee, Messrs. J. T. Lansing, C. R. Knowles, Dudley Olcott, A. Vander Veer, M. D., James McCredie. At a meeting of the governors held January 16, 1904, the following changes were made in the staff: Dr. William Hailes, to be consulting surgeon; Dr. Edgar A. Vander Veer, to be attending surgeon, to fill the vacancy caused by the promotion of Dr. Hailes; Dr. Arthur Sautter, to be assistant attending physician in the Department of Diseases of the Skin; Dr. Albert Vander Veer, to be surgeon in chief; Dr. Arthur Elting, to be attending surgeon, to fill the vacancy caused by the promotion of Dr. Albert Vander Veer.

St. Peter's Hospital Opening.—The new portion of St. Peter's Hospital was opened to public inspection on February 9th and a large number of Albanians availed themselves of the opportunity. About $60,000 has been expended on this addition and every portion of it is fitted out in a manner that is unsurpassed by any hospital in the country. Work has now been commenced in the old portion and that building will be entirely remodeled and made new throughout, to match the new portion.

The organization of the hospital is as follows: The advisory board consists of Rt. Rev. Thomas M. A. Burke, bishop of Albany, president; Hon. Charles Tracey, vice-president; E. J. Hussey, treasurer; James F. Tracey and Hon. John W. MacNamara. This board has been of incalculable benefit in the upbuilding of the institution, and they have earned and secured the lasting gratitude of all interested in the hospital. Especially praiseworthy has been the assistance rendered by Mr. E. J. Hussey, whose efforts as treasurer have been most ceaseless and successful.

Medical and surgical staff: Consulting surgeon, Patrick J. Keegan, M. D.; consulting physician, T. Kirkland Perry, M. D.; attending surgeons, Samuel R. Morrow, M. D., John V. Hennessy, M. D., John B. Harvie, M. D., Charles E. Davis, M. D.; attending physicians, Henry Hun, M. D., Howard Van Rensselaer, M. D., Andrew MacFarlane, M. D., T. L. Carroll, M. D.; ophthalmic and aural surgeons, George S. Munson, M. D., Leo F. Adt, M. D.; nose and throat, Clement F. Theisen, M. D.; obstetric surgeons, John F. Reilly, M. D., W. J. Wansboro, M. D.; skin and venereal diseases, James W. Wiltse, M. D. Dispensary staff: Surgeons, John F. Heffernan, M. D., Jos. A. Cox, M. D., John H. Gutman, M. D.; resident surgeon, A. R. Miller, M. D.; physicians, Joseph P. O'Brien, M. D., W. H. Happell, M. D., J. A. Lanahan, M. D.; resident physician, George L. Branch, M. D. Diseases of children, Henry L. K. Shaw, M. D.

Medical Society of the County of Albany.—At the March meeting of the Society, to be held in Alumni Hall on the second Wednesday, Dr. George H. Fox, professor of diseases of the skin, College of Physicians and Surgeons, of New York city, will give an illustrated lecture on syphilis. It is hoped that a large audience will greet Professor Fox on that occasion and members of the Society are especially urged to be present.

UNION OF NEW YORK STATE MEDICAL SOCIETIES.—At the annual meeting of the Medical Society of the State of New York, held in Albany, January 26th-28th, the proposed union of that society with the New York State Medical Association was brought about. Legislation has been affected permitting this to be done and now all is in readiness with the exception of completing the final arrangements for the government of the new body. This matter may appear to be of local interest but we believe that it will affect the interests of the profession throughout the country. Medical legislation, educational standards, and public health laws will certainly be better cared for and promulgated and the action of the Empire State in all matters of that sort is watched very carefully and copied throughout the country.

THE AMERICAN JOURNAL OF NURSING.—A copy of number one, volume one, of the *American Journal of Nursing* is wanted to complete the volume in the medical library of the New York State Library. Address State Library, Albany, N. Y.

MERGER OF TWO JOURNALS.—Consolidations are the order of the day, in journalistic, as well as in railroad and other business affairs, since economies are often thus effected, and at the same time the public is equally well served. Messrs. E. B. Treat & Co., who publish both the *International Medical Magazine* and the *Archives of Pediatrics*, find it to their interest to consolidate them. In the future the *International* will cease to exist as a separate journal and the publishers will put all of their efforts into the management of *Pediatrics*.

THE MEDICAL LIBRARY AND HISTORICAL JOURNAL.—This unique journal has issued its prospectus for its second volume. Its pages will be particularly devoted to medical bibliography, history and biography. Its contributors include many of the leading men of the profession of the United States.

JOURNAL OF EXPERIMENTAL ZOÖLOGY.—A new journal soon to be published bears the name of *Journal of Experimental Zoölogy*. Those of the medical profession who desire to keep posted on the results of the latest research in the field of zoölogy can do so by a persual of its pages. It is planned to issue one volume a year, consisting of four numbers, of 100 to 200 pages each, to appear at such intervals as the material may render expedient. Mr. R. G. Harrison, of Johns Hopkins University is to be its managing editor, with offices at Baltimore, Md.

A NEW DAILY MEDICAL JOURNAL.—This month sees the publication of the first number of a daily journal, *The Daily Medical*, published by The Medical Publishing Co. of America, New York city. We trust it may prove successful.

EXAMINATIONS FOR ARMY MEDICAL SERVICE.—The examination of applicants for appointment as assistant surgeon in the United States army will be resumed in Washington immediately after the close of the present session of the Army Medical School; it will embrace the full examination (as heretofore), at the conclusion of which those found qualified will be commissioned. Full information as to the requisite qualifications for appearance for examination, method of application, nature and scope of examination, etc., may be obtained upon application to the Surgeon General, U. S. Army, Washington, D. C. The examining board will probably reassemble about the middle of April next, and those desiring to present themselves before the board should make application at once. Applicants are restricted in age to thirty years, and one year's hospital experience or its equivalent in private practice is required.

TESTING OF CLINICAL THERMOMETERS.—Under the provisions of an act of congress, approved March 3rd, 1901, a Bureau of Standards has been established at Washington which is authorized, among other things, to test clinical thermometers used in medicine, surgery, pharmacology and related scientific work. After a very exhaustive study of the errors commonly existing in the instruments now in use this bureau will, from now on, be ready to test and certify all such thermometers, and manufacturers will no doubt be only too ready to forward their instruments to Washington for certification thereby securing official recommendation for their goods, and the profession can be more sure of the correctness of their readings.

ANTI-ANTHRAX SERUM.—The Turin Academy of Medicine has awarded the Riberi prize of $40,000 to Professor Scalve for his successful anti-anthrax serum as the best work accomplished in the medical field during the past five years. When the serum is used local treatment is unnecessary. The method he employs is to slowly inject forty or fifty cubic centimetres at several points in the forearm or back of hand. In Argentina, where mortality has always been high, the rate has been reduced to nearly zero. It has been applied there in 130 cases.

A NEW POISONOUS DRUG.—A more powerful poison than any heretofore known is now being investigated. Mr. Lascellus Scott, of England, has recently published some very startling facts about cyanide of cacodyl. It is a white powder, melting at thirty-three degrees and boiling at 140 degrees, which when exposed to air gives off a slight vapor, to inhale which is death. Its effect is so powerful that Mr. Scott states he has seen one-millionth part of a grain of the drug instantly kill four dogs when they were introduced into an air tight cage with it. While but little known, it was made many years ago by a noted French chemist, Cadet. He combined potassium acetele with white arsenic, producing a fuming liquid, oxide of cacodyl. This when combined with cyanogen, a radicle of prussic acid, produces cyanide of cacodyl, thousands of times more poisonous than the pure prussic acid.

PATENT MEDICINES IN GERMANY.—The Federal Council of Germany has agreed upon a set of regulations for the sale of secret remedies, and will endeavor to have laws passed in the different German states in accordance with the recommendations. The regulations prescribe that the vessels and wrappers in which the listed remedies are sold must contain the name of the remedy and that of the manufacturer; also the name of the firm where the same is sold, and the price. These rules do not apply to the wholesale trade.

It is prohibited to have testimonials, advertisements, etc., appear upon the vessels or the wrappers, or to hand such matter to the purchaser separately, or in any other manner.

The druggist is obliged to ascertain to what extent the rules relative to the sale of drastic remedies apply to the article sold.

Any nostrum contained in the lists, about which the druggist cannot ascertain whether its composition is such as to permit the sale without a physician's prescription, can only be sold upon a written prescription, dated and signed by a physician, dentist, or veterinary surgeon; in the latter case, however, only if the remedy is intended for animals. A repetition of the sale requires a new prescription. Remedies of this class must bear the inscription on the vessels or the wrappers: "To dispense on physician's prescription only."

TUBERCULOSIS SANITARIUM IN OHIO.—The state of Ohio is now endeavoring to provide means for caring for incipient pulmonary tuberculosis cases and a plan for the establishment of a state sanitarium already has the endorsement of the governor and state officials. The legislature will soon be called upon to provide the necessary funds.

PERSONAL.—Dr. GEORGE BLUMER, formerly professor of pathology and bacteriology in the Albany Medical College, and a valued collaborator of the ALBANY MEDICAL ANNALS, has begun the general practice of medicine in San Francisco, and has opened his office at 369 Sutter street.

—Dr. DAVID T. CONDICT (A. M. C. '74), has removed to Goshen, N. Y., where he is doing active work.

—Dr. ELWIN CHAMPLIN (A. M. C. '02), has removed from Griffin Corners to Roxbury, N. Y.

—Dr. HOBERT BRITTAIN (A. M. C. '90), is now practicing in Downsville, Del. Co., N. Y.

—Dr. JOHN J. BEARD (A. M. C. '97), has removed from Sharon Springs, N. Y., to Gloversville, N. Y., where he has opened his offices at No. 16 Elm street.

—Dr. JOHN FALLON (A. M. C. '97), formerly of Lansingburgh, N. Y., is now well established in Schenectady, N. Y.

—THE ANNALS has received from Mrs. Willard, whose husband, the late Dr. Sylvester D. Willard, was the early historian of the medical profession in Albany and first annalist of the County Medical Society, a pleasant letter of congratulation upon the appearance of the Jubilee number. It is gratifying to know that Mrs. Willard retains an interest in the city in which her husband did so much to advance the interests and perpetuate the records of the profession, and labored so valiantly for the amelieration of the condition of the insane poor of the state. Mrs. Willard is now living in London with her son, Dr. Sylvester Willard, who is practicing medicine at 48 Hertford street, Mayfair, W.

DIED.—The death of Dr. WILLIAM E. FORTUNE (A. M. C. '81), occurred Feb. 4, 1904, at his late residence, Nicholville, N. Y., aged forty-six years.

IN MEMORIAM

WILLIAM E. FORTUNE, M. D.

Once again death has invaded the ranks of our alumni and removed from us Dr. William E. Fortune. After an illness of only ten days Dr. Fortune succumbed on February 4, 1904, to the effects of congestion of the lungs. He was born in Nicholville, N. Y., in 1857, and after a good preliminary education entered upon the study of medicine at the Albany Medical College, from which institution he graduated in 1881. After spending two years in practice at Morley, N. Y., he returned to his native town, where he remained, actively engaged in his professional life, until the time of his death. Dr. Fortune will be missed by the community where he has endeared himself by reason of his skillful hand and open heart. He was prominent in fraternal as well as professional circles, being active in Masonic and Odd Fellow bodies as well as several other similar organizations. The funeral was conducted by his church pastor at the house and at the grave the Masonic lodge assumed charge. He is survived by his wife, mother and one brother.

Book Reviews

Modern Materia Medica and Therapeutics. By A. A. STEVENS, A. M., M. D., Lecturer on Physical Diagnosis in the University of Pennsylvania; Physician to the Episcopal Hospital and to St. Agnes' Hospital; Fellow of the College of Physicians of Philadelphia, etc. Third Edition. Entirely Rewritten. Philadelphia, New York, London: W. B. Saunders & Company.

In these days of the multiplication of medical books, when so many that come to the reviewer's table have alone as excuse for their being the gratification that comes to a man when he sees his name on a title page, it is a positive pleasure to find a full, plump kernel of grain in the midst of the chaff.

The teacher of materia medica has a most difficult task to perform, for the rapid strides which have been taken in that branch of medicine impel him to enlarge and elaborate his lectures, thus making interesting a subject, which to the majority of students, is dry and uninteresting and learned only to be forgotten. Yet the knowledge that much of his new material is on trial, acts as a check to his enthusiasm and compels a most rigid scrutiny of even that which seems most promising. So with the text-book; there is the same temptation to make interesting at the expense of accuracy or the same conservatism and we find usually, either a book filled with descriptions of drugs or methods as yet unproven by the test of time; with page upon page which the student wades through, only to find at the end that this is the opinion of Professor So-and-So, which is disputed by most clinicians; or we find an uninteresting grouping of facts according to some arbitrary standard, and worthy of a place in the driest of all dry dictionaries.

The happy medium is a *rara avis,* and such an one is to be found in Modern Materia Medica and Therapeutics by Dr. A. A. Stevens, and a legitimate excuse for this rather lengthy preface. Throughout Dr. Stevens' entire work, the keynote seems to be brevity and accuracy. The book opens with a general consideration of materia medica occupying but thirty-eight pages, yet containing every essential point for the student. Under this title we find a very important sub-division, one neglected in most text-books, viz: Incompatability in Prescriptions, written by Joseph England, Ph.G., and so concise, accurate and logically stated that it might well be learned by the majority of graduates. Materia Medica proper occupies four hundred and twenty-eight pages, and, in this (the third) edition, the author "has thought it best to classify them, [the drugs], according to their pharmacological action" instead of arranging them alphabetically as he formerly did, a decision much to be regretted, for the classification of no two authors is alike and all are open to criticism. Why, for instance, should the author describe cocain in three different classes: "Respiratory Stimulants," "Local Anæsthetics" and "Mydriatics," and in widely separated places instead of giving its different physiological effects under one head? Why should the student be obliged to look under "Circulatory Stimulants" on page fifty-eight for the effects of belladonna on the circulation and find the balance of the drug under "Cerebral Stimulants" on page seventy? And the wisdom of dividing the physiological action of strychnine between "Circulatory Stimulants" and "Spinal Cord Excitants," located sixty-two pages apart, is certainly to be questioned.

About one-fourth of the book is taken up with "Remedial Measures Other than Drugs," and "Applied Therapeutics." These subjects are well considered and contain many points of value, not only to the student, but to the practitioner.

The author has abandoned the cumbersome method to which most authors on this subject cling, of having one index for diseases and another for drugs and has one general index in which the diseases are printed in *bold-faced type,* and under these headings are the remedies indicated in the disease.

It is safe to predict that this edition will but point the way to many others in rapid succession and the publishers as well as the author are to be congratulated on this valuable addition to the *armamentarium* of the teacher and the student.

SPENCER L. DAWES.

A Laboratory Text-Book of Embryology. By CHARLES SEDGWICK MINOT, LL.D., D.Sc. P. Blakiston's Son & Co. Philadelphia, 1903.

The fore-lying work is intended according to its author for students taking a practical laboratory course in embryology. Its table of contents is divided into heads as follows: (I) General conceptions. (II) The early development of mammals. (III) The human embryo. (IV) Study of pig embryos. (V) Study of young chick embryos. (VI) Study of the blastodermic vesicle and the segmentation of the ovum. (VII) Study of the uterus and the foetal appendages of man. (VIII) Methods.

The work differs very greatly both in scope and in method of treatment from most of the handbooks on the subject published in English. The first chapter considers in more or less detail the development of the subject of the work, especially the laws which govern growth, differentation, regression, removal of cells and regeneration of tissues. One of the author's statements well deserves quoting where he says that the medical student "will find in embryology first of all the clue to the intelligent comprehension of the anatomy of the adult, a comprehension he can gain in no other way . . ." The theory of Nusbaum on heredity of germ-plasm are accepted by the author who considers this to be the only tenable hypothesis, although he admits that Darwin's theory of pangenesis, has a large following culminating in the useless speculation of Weismann. The major portion of the book is taken up by a study of serial sections of the pig embryo, and which is illustrated most fully by original drawings from specimens from the Harvard Embryological Collection, the finest in this country if not in the world. This animal was chosen because it is a representative mammalian type, and subjects for study may readily be procurable. The admirable studies of Sobotta on the impregnation and segmentation of the ova of white mice are taken advantage of in the chapter on the segmentation of the ovum. The chapter of human embryology seems entirely too limited for a text-book intended for the use of medical students, although in all other respects it is very good, especially so in its descriptions of the early ova of Peters, Kollmann, Spee, and Coste. The style of the book is more than usually readable and cursive, the illustrations really illustrate, the plates of reconstructions almost stereoscopic, the typography and paper very good. The book is however unwieldly except for study at a table.

J. F. R.

Les Rayons de Röntgen et le Diagnostic des Maladies internes. Par le Dr. A. Béclère, médecin de l'hôpital Saint-Antoine. 1 vol. in-16 de 96 pages, avec figures, cartonné (*Actualités médicales*): 1 fr. 50. (Librairie J. B. Baillière et fils, 19, rue Hautefeuille, à Paris.)

This book of ninety-six pages is one of a series of short monographs dealing with subjects prominent in the medical life of the present. After a short introduction, in which the author points out in a general way the value of the X-Rays in medical diagnosis, he proceeds to a series of chapters taking up in detail the technical aspects of the work and the exploration of the contents of the different body cavities.

He deals first of all with the contents of the thorax, and points out that here radioscopy in even more important than radiography. He emphasizes the value of X-rays as an aid to diagnosis in tuberculosis of the lungs, pleural and pericardial effusions, hydatids, aneurysms, and foreign bodies in the air passages. He lays down a regular routine to be followed in each case and mentions certain possible errors and how to avoid them.

In the section referring to X-ray exploration of the abdomen the author states that the uses of this agency are most apparent in certain tumors of the stomach, especially combined with artificial distension of the stomach or the use of bismuth, and in calculi, renal or vesical.

.The section on the central nervous system relates mainly to the study of certain cranial tumors, changes in the bones in acromegaly, and the detection of metallic bodies in the skull. This chapter might have dealt more fully with the detection of spinal cord diseases aside from caries. A chapter on the detection and localization of foreign bodies in the eye would also have been an advantage.

The book is a satisfactory though necessarily brief resumé of our knowledge of the subject. The illustrations are many of them good, but some of the reproductions of radiographs are indistinct. The work will certainly accomplish good if it succeeds in drawing the attention of the internist to this important and as yet poorly utilized field of research. G. B.

Current Medical Literature

MEDICINE

Edited by Samuel B. Ward, M. D., and Hermon C. Gordinier, M. D.

Spondylitis Deformans.

RUHRAH. *American Journal of the Medical Sciences, November, 1903.*

The writer uses the report of a case in order to discuss this interesting condition.

Inflammatory conditions of the spine with ankylosis have not been clearly differentiated, and it is probable that affections differing somewhat in their symptoms and greatly in their causations have been grouped under one head.

Marie has defined the essentials of his disease as the coincidence of a complete fusion of the vertebræ with more or less complete ankylosis of the proximal articulations of the limbs. That this is no modern affection is proved by the finding of this same condition in Egyptian skeletons. Infectious diseases, especially gonorrhea, are regarded by some as the etiological factor, while others lay stress upon the occupation, as that of blacksmith and fireman, and the rapid temperature changes. Von Bechterew and Oppenheim believe in a nerve origin theory. It most frequently occurs in young adults or in middle age and most commonly in men.

Goldthwait regards the cases as divisible into two bone diseases: rheumatoid arthritis with marked inflammation, followed by ankylosis and atrophy of the bone with deformity, and, secondly, osteoarthritis with nodular deposits about the joints, but no atrophy.

Fagge describes the findings in his case by saying that the spine looked as if liquid bone had been poured upon it and allowed to harden.

Goldthwait has divided the symptoms into early and late. The symptom-complex consists of pain, limitation of motion, muscular contractions and referred pains due to pressure on the nerve roots. Pain may be present or absent from site of the lesion and may, in some cases, suggest lumbago, being worse after rest and improving upon exercise. The referred pain may be very severe and is felt in the back, arms or legs, according to the location of the lesion. It is either unilateral or bilateral and is referred to the nerve endings and not to the track as in neuritis.

There may be areas of hyperæsthesia and anæsthesia.

There is some limitation of motion but the characteristic attitude does not appear until later, when the spine is as if the vertebræ had been soldered together. The entire vetebral column may be solid, or only particular portions, as the lumbar, dorso-lumbar or cervical. With this stiffness, which usually covers years in its development, there is a curving forward of the upper part of the spine, inducing a stooping posture. Ankylosis of the shoulder and hip joints comes on coincidently and gradually with the disease in the spine.

The early cases may be confused with beginning Pott's disease, rheumatic gout, rheumatism of the spine, pachymeningitis cervicalis hypertrophica, pachymeningitis hemorrhagica interna, traumatic hereditary kyphosis, laborer's spine and gonorrhea involving the spine.

With an early diagnosis and proper treatment Goldthwait believes the prognosis is better than formerly supposed and that much of the deformity may be prevented. In the early cases much can be done to relieve the symptoms and to prevent the deformity by mechanical support to the spine of either plaster casts or special apparatus. This support should be continued until the disease is entirely quiescent. The general condition should receive attention by the administration of nutritious food and the indicated tonics.

OBSTETRICS AND GYNAECOLOGY

Edited by James P. Boyd, M. D., and H. Judson Lipes, M. D.

The Treatment of Abortion. (Zur Behandlung des Abortus.)

NASSAUER. *Muenchener medicinische Wochenschrift, September 22, 1903.*

The line of treatment followed by the author in all cases of abortion is as follows: A copious hot irrigation of some antiseptic solution is given and then the vagina is tamponed with iodoform gauze and absorbent cotton. This tampon prevents any external hæmorrhage and aids the internal separation of the ovum from the uterine wall. The ovum is separated by the hæmorrhage between the uterus and the ovum and the vaginal tampon tends to keep the blood damned back in the uterus. In the majority of cases where the tampon is removed, the entire product of conception comes away.

A more radical line of treatment is indicated in cases where the hæmorrhage is very profuse and not controlled by tampons. A rise of temperature is another indication for operative treatment. In general the author believes in active treatment in those cases where the expectant treatment is a source of danger to the mother. In North Germany the sentiment is for a rapid instrumental removal of the ovum while the conservative influence of Winckel is felt throughout Southern Germany. The writer is a disciple of Winckel and cites several cases where the uterus was ruptured by unskillful use of the curette and where a general infection had resulted.

Where operative treatment is indicated, the author has devised a special form of dull forceps (Kornzange) which have the great advantage of being harmless in the hands of an inexperienced person. He also claims that a puncture of the uterine wall or injury to the endometrium is impossible.

The author cautions and advises against the use of a curette. The finger is not a satisfactory substitute for the curette in his opinion.

The Etiology and Therapy of Pruritus Vulvae. (Zur Aetiologie und Therapie des Pruritus Vulvae.)

SEELIGMANN. *Deutsche medicinische Wochenschrift, No. 9, 1902.*

The author refers to his article on the same subject published in 1892, in which he gave the results of his microscopical and bacteriological studies of pruritus vulvæ. Olshausen, in his classification of the varieties of pruritus into symptomatic and essential pruritus, has described the latter variety under the head of a true neurosis. The author takes exception to this term, claiming that these cases occurring in women without other nervous or hysterical symptoms, cannot be explained in this way. He has made since 1891 careful bacteriological examinations in the cases coming under his care, with the following results: in all his cases, a diplococcus, which in form and appearance is similar to the gonococcus was obtained almost in pure culture. The material for making the cultures was obtained directly from the itching places in a sterile manner, and placed on the following culture media. On agar — Placed in oven at temperature of thirty-seven degrees centigrade. Rapid growth, with a white enamel-like covering; the growth developed best on a medium of glycerine agar. On bouillon—the same rapid growth; culture had a disagreeable odor. The result when potato was used was the same. On gelatine the growth developed very slowly. The diplococcus which was obtained in almost pure culture is easily colored with aniline colors, and after Gram's method. The author was able to prove bacteriologically, that solutions of guaiacolvasogen in the strength of ten, fifteen, and twenty per cent., when placed in the culture tubes destroyed the growths very rapidly, so that none of the diplococci could be found. At ten per cent. solution rendered a culture perfectly sterile in five minutes. In cases of pruritus in which the author used solutions of guaiacolvasogen, no diplococci could be found after they were used. A large number of cases of primary and secondary pruritus were treated and in nearly all a complete cure was obtained. The method of applying the treatment is as follows. The vulva is first thoroughly cleaned and any excoriations first healed by the use of proper solutions or ointments. A solution of guaiacolvasogen, at first ten per cent., is then applied on cotton to the itching places and allowed to remain in place all night. Such applications should be made every evening for a number of days. If the ten per cent. solution should not stop the itching, a fifteen or twenty per cent. solution can be used. Care should be taken, however, in using strong solutions, as the preparation is irritating to the skin in very strong solutions.

NEUROLOGY

Edited by Henry Hun, M. D.

Concerning "Chorea Mollis sive Paralytica" with Changes in the Muscles. (Ueber Chorea Mollis sive Paralytica mit Muskelveränderungen.)

W. Rindfleisch. *Deutsche Zeitschrift für Nervenheilkunde, Band 23, Heft 1 and 2.*

Although a moderate degree of weakness is an almost invariable accompaniment of chorea minor, outspoken paralysis is a very infrequent complication. Palsies which accompany this disease appear in two forms which may be fairly sharply differentiated from each other. In the first class are cases in which a more or less extensive paralysis dominates the symptoms so that the underlying disease is overlooked and an erroneous diagnosis results. This is the disease to which West gave the name "Limp Chorea," and after him the French, "Chorea Mollis." In the second group are the cases in which the ordinary more or less severe chorea is accompanied by paralysis which is limited to a given region but develops into a complete form.

The development of the two symptoms of chorea, palsy and involuntary muscular contractions, may be entirely different in different cases. The palsy may open the scene entirely independently of the choreic movements, or it may follow the development of outspoken chorea, which may then rapidly lose its intensity, or both symptoms may appear simultaneously.

The distribution of the paralysis is very variable; frequently one extremity only is involved; not infrequently there is a hemiplegic type; in some cases all extremities as well as parts of the trunk musculature are attacked, although in this event one side or one extremity shows a preponderance of weakness. In its character the paralysis is essentially flaccid. This hypotony gives the patient a very characteristic appearance. The affected limbs may be passively brought into extreme attitudes, without giving the slightest indication of resistance. In extensive cases the child cannot maintain a position of either standing or sitting, but collapses in the way described by the French as "comme un chiffon." The electrical reactions are unaltered; atrophies are seldom observed, and are to be regarded as arthritic; the tendon reflexes ordinarily fail, although the cutaneous reflexes are retained; sensation is normal, and pain is not present.

The prognosis is usually favorable. In the course of a few months restoration follows, with renewed use of the affected muscles. Frequently this gain in muscular strength follows increased activity of the choreic movements or accompanies it, hand in hand. In the differential diagnosis infantile paralysis is most apt to be mistaken for choreic palsy, but the absence of changes in nutrition and of the electrical irregularities suffices for an exact distinction.

The etiology of chorea is reviewed and the author then reports the results of investigations upon certain muscles obtained from cases of chorea of infectious origin. These muscles showed swollen broadened and twisted fibres, with great variations in the striations and in the susceptibility of the nuclei to the stain. In some instances the characteristic structure of the healthy muscle fibres was entirely lost. Occasionally the nuclei were greatly increased and at other points these were absent. The individual nuclei were variable in size and form and susceptibility to stain. In the interstitial tissue which was particularly rich in nuclei there was marked round celled infiltration, interspersed with minute hæmorrhages and extravasation of red corpuscles into the sheaths of the empty sarcolemma. The intramuscular nerve fibres were absolutely normal.

Intermittent Claudication. (Ueber intermittirendes Hinken.)

H. Idelsohn. *St. Petersburger medicinische Wochenschrift, 1903, No. 5, February 1.*

Charcot first gave the name of this disease, and Zoege von Manteuffel described cases of rheumatism of the lower extremities and its relation to gangrene, endeavoring to draw a distinction between the condition in his patients and those described by Charcot. Goldflam, Erb and Higier have made valuable contributions to the literature of the subject. The disease attacks individuals in the prime of life, from twenty-two to sixty years of age. The attack is insidious and the patient first consults the physician after he has had cutting sensations in the legs, perhaps for years. In the beginning the pains appear spontaneously and after a time disappear, but gradually return and become more severe. The patient tires easily and is able to take only a short walk before needing rest, and then he notices that he goes only the same distance each time before the disagreeable sensations appear, and that with almost unerring accuracy identical sensations are felt in one or both feet. The foot grows as heavy as lead, and the patient favors the foot so that the limping becomes prominent. If the disease does not remain stationary paraesthesiæ occur in the shin or in the calf, the foot becomes numb and cold, the calf muscles cramp, so that the patient feels that he is pinched and kneaded, the pain extends over the toes and dorsum of the foot, and this area becomes cold and stiff. The patient then has a sensation of one toe lying over the other, the suffering increases and he is finally compelled to remain at rest. After a few moments the discomfort diminishes, the cramps in the calf subside, the foot becomes warmer and walking is again possible; indeed jumping and running may be done, as if there had been no interruption of power. These symptoms are not generally present when the patient is sitting or lying, especially in the early stages. An important diagnostic point is the condition of the arteries of the foot. Either the dorsalis pedis or the tibialis posticus artery may not be found on palpation or may be plainly more insignificant than the corresponding vessel of the healthy foot, when one only is affected. With practice these vessels may be easily reached when the foot hangs down, and in ninety-nine per cent. of healthy persons they are easily distinguishable. The calf of the affected limb is often somewhat atrophied, the veins are prominent, and obliterated veins and arteries may sometimes be felt as coarse cords. The skin is parchment-like, hard, thin and transparent, is dry and sweats very little or not at all, the nails grow slowly—one patient stated that he had not needed to trim the nails in a year—or they show furrows.

These clinical symptoms may be explained upon the basis of the pathological anatomy. The lesion is an obliteration of the peripheral arteries, authorities differing as to whether this originates in the arteries or follows disorder of the nerves. The pains, at any rate, follow the defective circulation in the foot. As long as the foot is at rest, enough blood is supplied to the muscles, nerves and vascular structures, but when the muscles are in motion, an additional demand is made upon the circulation, which cannot be met through the narrowed arteries. This need is supplied during the period of rest, and the symptoms are relieved.

The prognosis is not entirely bad, as occasionally circulation is restored by dilatation of the affected vessel or compensation by the collaterals. Among the causes are flat-foot, exposure to wet and cold and perhaps abuse of alcohol and tobacco. In a few cases the disease has been associated with diabetes.

The treatment includes rest, massage, stimulation by luke-warm foot baths, and Erb recommends highly tincture of strophanthus. In one or two cases Idelsohn has had good results from the use of mercury.

A Case of External Spinal Pachymeningitis, Implicating the Entire Ventral Surface of the Spinal Dura.

MILLS AND SPILLER. *Brain, Autumn,* 1902. *p.* 318.

A man, aged 42, was admitted to the hospital February 17, 1896. His present trouble began in June, 1895, with numbness in the right foot. For some time previous to this, there was swelling and tenderness of the legs and pain in the lumbar region. The numbness gradually spread to the leg and foot of the left side. February 18, 1896, on examination, it was found that he was paralyzed in both lower extremities, and these were the seat of spasticity and marked contractures; all the deep and superficial reflexes in the lower extremities wer e much exaggerated, and he suffered from incontinence of urine. Objective sensation was everywhere intact. This condition existed up to November, 1900. In April, 1901, the right hand became gangrenous and was amputated. In May, 1901, he developed pneumonia, from which he made a good recovery. In June, 1901, he developed a left sided pleurisy, but recovered and enjoyed good health up to December, when he developed an attack of œdema of the lungs and died.

Autopsy the same day. The following conditions were found: Thrombosis of the right pulmonary artery, cardiac dilatation, miliary tuberculosis and œdema of the lungs, parenchymatous nephritis and arterio-sclerosis. The external surface of the spinal dura, on the ventral aspect, was firmly adherent to the bodies of the vertebræ throughout the spinal canal. The dorsal aspect of the dura presented nothing abnormal.

Microscopical examination. Sections of both paracentral lobules and the medulla appeared normal, except that the blood vessels were distended. In the cervical region, a few cell bodies were degenerated and some were seen with their nuclei displaced. The columns of Goll, the direct cerebellar and Gowers' tracts, were degenerated on both sides. Small recent hemorrhages were seen through the sections. The crossed pyramidal tracts were not degenerated. In the dorsal region, the degeneration was marked, especially in the periphery of the cord. In the lumbar region, the nerve cell bodies were normal. The degeneration of the crossed pyramidal tracts was marked and extended forward in the periphery of the cord. The posterior columns were slightly degenerated. The dura, in its ventral portion, was composed of the fibrous tissue commonly found in its sheath, and the proliferations on the outer part of the dura were composed chiefly of the same fibrous tissue. There was little evidence of acute inflammation. The ulnar, and one of the musculo-spiral, median and plantar nerves showed much excess of connective tissue between the nerve bundles and some of the nerve bundles were degenerated. There was no leptomeningitis. There were no diseased vertebræ to cause the adherence of the dura to the bodies of the vertebræ.

The degeneration of the posterior columns were probably caused by the degeneration of the posterior roots, which were compressed by the fibrous tissue in the dura. The intense degeneration in the dorsal region is difficult to explain. The cord was small and the changes were such as might be caused by interference with the circulation, and by pressure, yet the nature of the pressure was not very evident, as the adhesions alone were hardly sufficient. The degeneration in the cervical and lumbar regions was probably secondary, and due to the lesion in the dorsal region. The cause of the external spinal pachymeningitis is obscure. It might be due to syphilis, but the patient denied any such history, besides it generally causes a meningomyelitis, and there was not the slightest evidence of such a process in this case. The characteristic symptoms of tuberculosis were not found in the vertebral canal.

MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

Iodipin and Lipiodol. (L'huile hyperiodée en thérapeutique oculare. Iodipin, Lipiodol.)

Bellencontre. *Le Progrès Médical, August 16, 1902.*

Iodized oil is not a mere solution of iodin in oil, but an actual, stable combination of iodine and fatty acids, and, while it has all of the therapeutic advantages of the iodin, it is free from its objectionable qualities; it has neither the color, odor, toxicity nor caustic properties of iodin. On the other hand, it is colorless, has a faintly oily smell and taste and causes no discomfort, either to the digestive tract, if taken internally, or to the tissues if applied locally. In large doses, even, it can be administered hypodermatically, without pain, danger or iodism. It has two forms, iodipin and lipiodol, whose main difference is that the former can be concentrated to ten to twenty-five per cent., while the latter has about forty per cent. of concentration. The author prefers to use the weaker solution (iodipin, 10%) as a local application and the stronger (lipiodol, 25%) internally.

Even when given in large doses, internally, iodized oil does not create the general upset that potassium iodid is likely to. On the contrary, the patients grow stouter and their appetite improves; only exceptionally does iodism occur or the patients complain. Its absorption is rapid; iodine may be found in the urine twenty minutes after ingestion. Elimination is, however, slower than is the case with the iodides; the iodine appears to be stored in the tissues, which fact, probably, accounts for the absence of iodism. Iodine may be found in the urine a month, or even longer, after administration has ceased. The oil is not unpleasant, even alone, and it can be made into a quite agreeable emulsion. It is, however, unquestionably best used hypodermatically. Such use of it is painless and has no local reaction. No part of the syringe used should be made of vulcanite or rubber. It is in tertiary syphilis that these preparations are of peculiar value, and in parasyphilitic conditions, but also in the lymphatic diathesis, in rheumatism and scrofula. They have also been injected subconjunctivally and instilled into the eye. In interstitial keratitis, Bellencontre found the iodized oil, hypodermatically injected, of great value. Scrofulous children, when given this treatment, instead of becoming more puny, as is apt to be the case when, because of having strumous keratitis, they are treated with the iodides, really gain flesh, and in a number of cases reported, the strumous appearances vanished, without any local treatment having been needed, to this end. Iodized oil is not a remedy for the ordinary iritis of secondary syphilis, but is of great value in iritis of rheumatic, tubercular or of doubtful syphilitic origin, later than secondary, and in those cases, of whatever etiology, in which Descemet's membrane and the cornea are the seat of the lesion. In tabes, optic atrophy without tabes, ophthalmoplegia, and the like, this writer has not used iodized oil with satisfactory benefit to the patients.

NEW YORK STATE MEDICAL LIBRARY

This was established May 21, 1891, by act of legislature in accepting as a gift the library of the Albany Medical College on condition that thereafter there should be a State medical as well as a State law library. In 1891 there were 2,740 volumes with 181 subject cards in the catalogue. That year there were added eighty-six volumes costing $28.18 and seventy-nine new subject cards. For the year ending September 30, 1903 the report shows 12,771 volumes and 8,695 subject cards in medicine. There were added 1,007 volumes and 693 subject cards. Two hundred and sixty-three of the best medical serials are received regularly not counting annuals, and 6,500 medical pamphlets have been collected. Last year $429.11 were spent for books, $861.02 for serials, $506.29 for binding and $40.50 for all other expenses.

At the request of the director, Doctors Vander Veer, Ward, Hun, Gorham and Elting of Albany, are serving as a medical board, meeting the first Tuesday of each month at four, P. M., to advise in the selection of books and on any other matters pertaining to the State medical library. After twelve years of effort we succeeded last year for the first time in securing a small appropriation for a medical librarian. Miss Ada Bunnell, B. L. S., a graduate of our own library school in 1891, and since that time one of the most valued members of our staff, was selected, in consultation with the medical board, for librarian and entered on her duties October 1, 1903. Her interest and efficiency have already amply justified the selection. All the current serials and the latest books are kept on the shelves in room thirty-three, while bound volumes of serials and the older books are in the adjoining rooms. This is the most convenient arrangement possible under the circumstances.

More has been done in building up the medical library than could be expected under the circumstances. The very moderate minimum appropriation fixed for maintenance in 1891, $5,000 a year, was the least with which it would be possible to keep up a reasonably full line of the costly medical serials with their binding and desirable new publications, with a small margin for filling in the best of older sets and books and a modest salary of $1,500 for a single librarian. $10,000 would have been a much wiser assignment, but the sum was reduced to the lowest limits. The finance committee assured us in 1891 when they cut the $10,000 appropriation asked for down to $5,000, that they were giving us this merely for the necessary shelving and other expenses attendant on the acceptance of the gift from the Albany Medical College, and that the annual appropriation of $5,000 for expenses would follow regularly. The gift was accepted, the good faith of the State was fairly pledged to the maintenance of the library, the shelving was provided with the initial appropriation but the next year that appropriation was withheld entirely. On protest of the physicians it was granted later and the list of periodicals subscribed for. The next year $1,500 was cut off from this appropriation, leaving us in a dilemma for the subscriptions started had to be maintained, and the numbers bound so that practically nothing was left for adding books. With annual appropriations varying from nothing to $2,000 instead of the $5,000 promised, it is remarkable that so good a showing has been made. For the next year we have $1,200 for services and $2,000 for books, serials, binding and other expenses, about one-third of what is necessary to run the library well. If the physicians interested would make their feelings known as clearly to the legislature as they do to us, the $5,000 agreed on would not again be reduced. A library made up almost wholly of serials can not be carried on with an uncertain appropriation as it would be very costly to fill the resulting gaps if subscriptions were stopped when funds were low. Our medical book board and the new librarian are giving much time and labor to this important department. Their efforts should be supplemented with an adequate appropriation and with the provision of more room. It is doubtful if it is possible to secure the needed space till a new library building is erected, as every other department of the library is already seriously overcrowded.

The following extract from the report of 1898 is interesting as showing the way in which the State medical library started:

"The number of medical books, serials and pamphlets published each year is startling in amount, and is rapidly growing larger. Only men of large means can afford to buy all these new publications; only those in the larger cities, and then in most cases to a very limited extent, have access to this important new literature. Yet the development of medical science makes it of the utmost importance that every practising physician should be able to know of the latest discoveries, for the life of any taxpayer of the state or of some member of his family may possibly be saved in a critical case through his physician's access to the recent information of the results of the experience of the rest of the medical world.

"In view of the direct and practical importance of making medical literature available to every licensed physician in the state, it was proposed by the state library in 1891 that a department be maintained at Albany in the interests of the state as a whole. Even those who from time to time secured loans from the national medical library in Washington felt the great desirability of having a collection near at hand, which they could visit in person or from which they could get books, pamphlets or information more readily. The matter was presented to the legislature and when the Albany Medical College generously offered to give outright its entire medical library, consisting of about 2,500 volumes and an equal number of pamphlets, including many large and valuable sets, a law was passed establishing the state medical library and providing that it should be open for consultation at all hours when the law library is open, and that it might lend books to every accredited physician residing in the State who should conform to the rules made by the regents for insuring proper protection and the largest usefulness to the people. The cost of transfer and of equipping rooms was estimated at $5,000, and the expense of economical administration was estimated at $1,500 for librarian and $3,500 for subscription to serials, buying new books and for needed binding and repairs.

"No physician for a moment begrudges the liberal provision made for the sister profession of the law, but as the medical library concerns an equally numerous profession and one so vitally important to every family it may justly claim at least equal consideration. When we add to this that the honor of the state is at stake, after having accepted the splendid gift of the medical library with the distinct understanding that it was to be maintained on a par with the law library, good faith clearly demands that the needed appropriations, which every one admits have been most economically expended, should not be reduced below the $5,000."

MELVIL DEWEY.

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Original Communications

SYMPOSIUM ON DIABETES

Read before the Medical Society of the State of New York, January 26, 1904.

I. THE PATHOLOGY OF DIABETES.

BY RICHARD M. PEARCE, M. D.,
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As it will be impossible in the short time at my disposal to cover all phases, many of them little understood, of the pathology of diabetes; and as the questions of chemistry and metabolism are to be discussed by Dr. Edsall who has specialized in these fields, I have determined to limit my remarks to a consideration of the pathology of that form of permanent diabetes, which, in the light of recent investigations, appears to be dependent upon lesion of the pancreas.

We may for the moment disregard the various forms of temporary glycosuria, variously known as alimentary, nervous, renal, and hepatic glycosuria and devote our attention to the permanent form, which, owing to its obscure etiology and the severe nutritional disturbances by which it is accompanied, the difficulties of treatment and the universally fatal termination has been the object of constant observation and investigation.

The literature of diabetes is replete with hypotheses and theories of the most divergent and conflicting character; but throughout this literature may be seen the tendency to associate diabetes with an altered physiology of the pancreas. This is due undoubtedly to the important function which this organ plays in the metabolism of carbohydrates, but also in no small degree to the frequency with which gross lesions of the pancreas are found in persons dying of the disease. Thus of the early English cases, Cawley* (1788), reports pancreatic calculus with atrophy of the gland; Bright (1833), cancer of the head of the pancreas with duct obstruction and consequent atrophy. The first definite statement of such a relation appears to be that of Bouchardat (1785), which received considerable support from both French and English writers. General support, however, was lacking, and the German medical world especially, did not concur until the publication of the convincing extirpation experiments of v. Mering and Minkowski. In these experiments it was found that complete removal of the pancreas is followed always by a definite diabetes of severe grade. Glycosuria appears as early as six hours after the operation; the sugar gradually increasing until the third day when it is usually about eight or ten per cent., though twenty-two per cent. (Hedon) has been observed. Towards the end, these high percentages fall, and as the sugar reaches its minimum, diacetic acid, acetone and oxybuturic acid appear in the urine. The other symptoms of diabetes are present, as hunger, thirst, and loss of weight. The animals ultimately succumb after varying periods of progressive emaciation and weakness. A repetition of these experiments upon a variety of animals has yielded uniformly concordant results. In birds glycosuria does not occur but the blood shows a considerable increase in its sugar content (hyperglycemia). Diet has but a slight modifying effect. While the maximum sugar elimination naturally occurs with a carbohydrate diet, an albuminous diet does not reduce it below five or six per cent., while fasting for seven days does not cause its entire disappearance. Moreover, it was found that if one-fourth or one-fifth of the pancreas was allowed to remain diabetes did not result; nor did it result, if after complete extirpation, a portion of the pancreas was transplanted subcutaneously. These experiments demonstrated conclusively a specific relation between some function of the pancreas and carbohydrate metabolism. What this function might be, or what changes in the pancreas might disturb its equilibrium was not clear. It was evident, however, that it could be explained only by an internal secretion, for no disturbance followed ligation of the duct. Furthermore it was evident that no other organ could vicariously assume this function of the pancreas.

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* As the literature of diabetes has been so recently collected by Opie in his book, Diseases of the Pancreas, a work which has been freely used in the preparation of this summary, I have not attached a bibliography.

Stimulated by these experiments, interest in the pancreas was renewed and as a result much data concerning the pathology of the pancreas of diabetes came to hand. Seegen, Hansemann, Dieckhoff and Williamson reported the results of large series of cases. In these, as well as in those previously reported by Windle, Frerichs and White, definite lesions of the pancreas occurred in a very large proportion of the cases. This relation is strikingly shown in the tabulations of Oser. Calculus of the duct with secondary atrophy stands out as a prominent condition. Cancer of the head with like atrophy was not uncommon. In Hansemann's series simple atrophy was present in thirty-six of forty cases. Other conditions found were chronic pancreatitis and lipomatosis.

Still many cases of diabetes constantly came to notice without lesion of the pancreas. Naunyn, indeed, in a series of forty autopsies found only one case in which the disease could be ascribed to disease of the pancreas. On the other hand, many cases of grave disease of the pancreas without diabetes were observed; Hansemann reports such a case in which complete destruction of the pancreas existed. This anomalous condition he attempts to explain by the hypothesis that in primary cancer of the pancreas the cells of the new growth retain, in part at least, the function of the cells from which they are derived and that therefore the internal secretion is not disturbed.

At the same time various attempts were made to associate with diabetes some distinct histological picture; as the combined chronic pancreatitis and arterio-sclerosis of Hoppe-Seyler and Fleiner, and the perivascular sclerosis of Lemoine and Lannois. An important condition observed by the latter was the penetration of the fibrous strands into the acini, thus separating the cells and presenting a condition which they designated unicellular sclerosis. Hansemann particularly associated with diabetes a condition of the pancreas which he calls granular atrophy but which from his description appears to be a primary chronic pancreatitis with atrophy.

The most important contributions to the histology of the pancreas of diabetes are those made during the past few years by Opie. He distinguishes two forms of chronic pancreatitis; (1) interlobular pancreatitis, characterized by the formation of fibrous tissue between the lobules, which are often invaded from the periphery and (2) interacinar pancreatitis, in which the newly formed fibrous tissue is diffusely distributed within the lobule, separating the acini and invading the islands of Langerhans. With the first type, freqently associated with duct obstruction, diabetes occurs only in those relatively uncommon cases in which an advanced sclerosis involves the islands. With the interacinar type, however, diabetes is much more frequent. Another important change observed by the same writer is a hyaline transformation of the islands with little or no alteration of the secreting parenchyma. He therefore looks upon involvement of the islands of Langerhans as the important point in the pathology of diabetes. His figures support this view; in twenty-one cases of interlobular pancreatitis, diabetes occurred but once and in this case the advanced sclerosis had produced alterations of the islands; while in seven of nine cases of the interacinar type, diabetes coexisted; and in six of nineteen cases of diabetes, hyaline transformation of the islands was present.

Such observations imply that the islands are in some way concerned in carbohydrate metabolism and therefore of fundamental importance in any consideration of the etiology of diabetes. The occurrence of these lesions in diabetes has been confirmed by Weichselbaum and Stangl, Herzog, Gentes, Wright and Joslin, Curtis[1], Finney[2], Schmidt, Hansemann and Herxheimer[3]. The last three writers, however, are not prepared to admit that these changes are of etiological importance.

In this connection the following notes of five cases of diabetes and one of acute glycosuria, studied during the past two years, may be of interest:

I. Records of the Pathological Laboratory, University of Pennsylvania, Autopsy No. 01.212. Female, aged sixty-two years. *Clinical diagnosis*—Diabetes, moist gangrene of leg, tetanus. *Anatomical diagnosis*—Thrombosis of left iliac artery and its branches; softened thrombi in left auricular appendix; moist emphysematous gangrene of left leg; infarction of spleen and left kidney; chronic obliterative pericarditis; chronic mitral endocarditis; hypertrophy of left ventricle; chronic diffuse nephritis; chronic interstitial pancreatitis; chronic adhesive pleuritis. *Histological examination* —Interacinar pancreatitis with involvement of many of the islands of Langerhans by the invasion of dense bands of fibrous tissue.

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[1] *L'Echo Med. du Nord*, 1902, vi, 140.

[2] *The Medical Chronicle*, 1903, v, 137.

[3] *Orth-Festschrift*, 1903, s. 38.

II. Records of the Pathological Laboratory, University of Pennsylvania, Autopsy No. 01.309. Male, twenty-seven years. (Service of Dr. J. H. Musser, University Hospital.) *Clinical diagnosis*—Phthisis pulmonalis, diabetes mellitus, Banti's disease. History of diabetes of two years' duration; sugar varied in amount from 1.25 to 7.5 per cent.; specific gravity of urine 1028 to 1040. *Anatomical diagnosis*—Splenomegaly; slight chronic interstitial hepatitis; general tuberculous peritonitis; tuberculosis of lung (caseous and gelatinous pneumonia with cavity formation); tuberculous pleuritis; slight chronic mitral endocarditis; fatty degeneration of heart and kidneys. *Pancreas*—The surface is more nodular than normal, the depressed portions œdematous. On section the nodular appearance is very marked. The consistence is about that of the normal pancreas. *Histological examination* reveals a moderate perivascular fibrosis and a hyaline degeneration of many of the islands; approximately one of every five is hyaline.

III.—Records of the Pathological Laboratory, University of Pennsylvania, Autopsy 02.16. Male, aged thirty-eight years. (Service of Dr. Alfred Stengel, University Hospital.) *Clinical diagnosis*—Diabetes, tuberculosis. *Anatomical diagnosis*—Gangrene and multiple abscesses of lungs; acute fibrinous pleuritis; fatty degeneration of heart and liver; cloudy swelling of kidneys; slight atrophy of thyroid gland; chronic interstitial pancreatitis; fibrosis and caseation of right adrenal; arterio-sclerosis; acute splenic tumor; multiple superficial erosions of the œsophagus. *Pancreas*—Weight seventy grammes, smaller than normal and firmer. The shape is more distinctly triangular than usual. The surface of the pancreas is grossly nodular. *Histological examination* of the pancreas reveals a slight diffuse increase of connective tissue; the islands of Langerhans are normal. The right adrenal is almost completely destroyed by tuberculous caseation and newly formed fibrous tissue. A small ganglion adjacent to the adrenal is not involved in this process. Left adrenal is normal. The alveoli of thyroid gland are moderately dilated.

IV.—Case of Dr. Wm. Pepper, of Philadelphia, presenting a history of nephritis, uræmia and acute (terminal) glycosuria. The autopsy report is not available. For sections of the pancreas and for the laboratory report which latter, owing to the peculiar terminal character of the glycosuria is given in full, I am indebted to Dr. Pepper. *Clinical history*—Female, aged fifty-eight, admitted to the University Hospital, September 4, 1902. " Patient in a semi-delirious condition and cannot give a satisfactory history of herself. From her daughter it was learned that the patient had been complaining of headache, dizziness and defective vision for the last two weeks, and that during the past week she has been at times quite delirious.

On admission catheterized; urine slightly cloudy, dark amber; no precipitate; specific gravity 1025; albumen 1-15 by bulk (centrifugated); *no sugar;* no bile, indican negative; diazo not made; a few flat round epithelial cells, a few pale and dark granular casts, and a few white blood cells. *Sept. 5th*—Mental condition better. Bowels moved freely. Urine dark amber; slightly cloudy; very light flocculent precipitate; specific gravity 1030; distinctly acid; albumen 1-15 by bulk (centrifugated); *no sugar;* bile and indican negative; a few flat and round epithelial cells, few white blood cells, many pale and dark granular casts. *Sept 6th—Blood*—Hæmoglobin, eighty-nine per cent.; red cells 5,010,000; white cells 10,860; Widal negative; no malaria parasites; nothing abnormal in stained films. Urine 9 A. M. dark amber; slightly cloudy; light, flocculent precipitate; specific gravity 1029; distinctly acid; albumen 1-15 by bulk (centrifugated); *no sugar;* bile and indican negative. Many flat and round epithelial cells, a good many white blood cells, very many very short, pale and dark granular casts, a few waxy casts. 5 P. M. urine color changed to a very pale amber; slightly cloudy; no precipitate; specific gravity 1029; distinctly acid; a decided trace of albumen; *sugar* 0.83 per cent. by Fehling's test; bile and indican negative; sediment shows many short pale and dark granular casts, a few waxy casts, very many flat round and spindle epithelial cells, very many white blood cells, many mixed urates. *Sept. 7th*—Urine 11 A. M. pale amber, slightly cloudy; light flocculent precipitate; specific gravity 1031; distinctly acid; decided trace of albumen; *sugar* 0.83 per cent.; bile and indican negative. Many short pale and dark granular casts, few waxy casts, many flat spindle and round epithelial cells, many white blood corpuscles, many mixed urates. *Sept. 8th*—Urine 2 P. M. pale amber; hazy; specific gravity 1030; acid; *sugar* present in large quantities; decided trace of albumen; epithelial cells, urates, no casts. *Histological examination*—of the pancreas shows irregular foci of slight interacinar pancreatitis with distinct involvement of the islands of Langerhans. The islands are frequently enlarged; the fibrous tissue abundant and often somewhat hyaline in appearance; the cells compressed and indistinctly outlined.

V—*Bender Laboratory Records, Autopsy 0.726.* Case of Dr. Andrew MacFarlane, Albany, N. Y. *Clinical abstract*—Male, aged twenty-six; laborer, duration of diabetes about eight months. Sugar constantly present in urine rising at times as high as four per cent.; diacetic acid and acetone also present. *Autopsy*—The abdominal viscera only were examined through a limited incision. *Pancreas*—Apparently normal in its gross appearance. *Histologically,* scattered areas of interacinar pancreatitis are found. The islands present a slight but definite increase of connective tissue with moderate atrophy of the intervening cells. A few small areas of fat necrosis exist.

VI—Records of the Pathological Institute, University of Leipzig, Autopsy 98 (1898).* Female, aged twenty-six years. *Clinical diagnosis*—Diabetes, pneumonia. *Note of post-mortem examination*—Extreme sclerosis and atrophy of the pancreas with presence of calculi (weight of pancreas,

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*** For the privilege of reporting this case, I am indebted to Prof. F. Marchand of the University of Leipzig.**

fifty-four grammes); diffuse lobular pneumonia with fibrinous pleuritis; hydro-pericardium; cloudy swelling of liver; fatty degeneration of kidney; calcareous bronchial lymph nodes. *Histology of pancreas*—Extensive atrophy and chronic pancreatitis of the interlobular type. In the more sclerotic portions the growth of connective tissue is interacinar. The islands are few in number, small, often isolated and frequently invaded by fibrous strands.

Lesions of the islands occurred in five of these six cases; in one the change was of the nature of a hyaline transformation; in the other four an interacinar pancreatitis with involvement of the islands existed. Whether or not the glycosuria in case III, in which the pancreas was normal, was dependent upon the lesion of the adrenal it is impossible to say. Glycosuria does not usually accompany such lesions. On the other hand the experiments of Blum, Herter and Richards indicate that the adrenal is in some way concerned in carbohydrate metabolism. These investigators found that after the injection into animals of the adrenal gland or adrenal extract, a temporary glycosuria results. Herter and Richards produced the same result by painting the surface of the pancreas with the extract. These experiments, however, are not analogous to destruction of the adrenal.

I can at this time also give a preliminary report of an investigation, as yet incomplete, of the diabetes associated with cancer of the pancreas. It is well known that cancer of the pancreas may or may not be accompanied by glycosuria. We have no definite explanation of the condition under which it occurs, though a resume of the literature shows that it is most common when the tumor is in the head of the pancreas and by duct obstruction causes atrophy (chronic pancreatitis) of the distal portion of the organ. The reverse condition, complete destruction of the gland by cancer without diabetes, is likewise difficult of explanation. It is true that Hansemann has suggested that the function of internal secretion is preserved by the cells of the new growth; but this is not applicable to secondary tumors and if we accept the theory that the islands alone furnish the internal secretion it is not tenable, as pointed out by Ssobolew and Opie, unless we assume that all primary tumors of the pancreas have their origin in the islands, and in support of this last possibility there is little evidence. Nicholls[4] has reported a primary adenoma of an islands, and Fabozzi[5] has recently described several primary cancers of the pancreas which he believes to have arisen from a like source. Fabozzi's observations, however, are not conclusive and are entirely opposed to the great mass of work on this subject.

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[4] *Journal of Medical Research*, 1902, viii, 385.

I have been able to collect for study thirty cancers of the pancreas. Three of these were accompanied by glycosuria, which in one case was a true diabetes, and in the second an intermittent glycosuria. I have no data concerning the character of the glycosuria in the third case. In the first case the tumor was in the head of the pancreas, causing obstruction of the duct with chronic pancreatitis of the distal portion of the organ. This chronic inflammation was for the most part interlobular, but in places was of the interacinar type with involvement of the islands, that is, presented the lesion which, according to our new ideas is supposed to be essential to the occurrence of diabetes. The third case was unsatisfactory for study inasmuch as only the tumor had been preserved and observations concerning the condition of the uninvolved pancreas could not be made. In the second case, accompanied by intermittent glycosuria, the pancreas showed no noteworthy change in the uninvolved portion of the organ. This case, similar to those reported by Wille, brings up the vexed question of alimentary glycosuria. It is known that a normal individual may digest without disturbance from 150 to 250 grammes of sugar, but that an increase over this amount may lead to temporary excretion of glucose in the urine. This excretion is due to hyperglycemia, the inevitable result of a sudden flooding of the circulation with an amount of glucose beyond that which the body is able at once to consume. On the other hand, in a number of abnormal conditions where there is no actual diabetes, an alimentary glycosuria may be produced by an amount of sugar which in the economy of the normal individual is easily consumed. Among the prominent conditions in which this occurs may be mentioned neuroses (traumatic and other forms), organic nervous diseases, alcoholism, infectious diseases, exophthalmic goitre, hepatic and pancreatic disease. Is it not possible that this temporary excretion of sugar is due to some transient disturbance of the function of the islands brought about by vascular disturbances of the islands or by some toxic substance, perhaps of the nature of an autotoxin, affecting the secretion of these structures or temporarily throwing them out of function? In a destructive disease of the pancreas, as cancer, a certain number of the islands are necessarily destroyed; the remainder, however, may be sufficient under normal circumstances to furnish the necessary secretion, whatever it may be, essential to carbohydrate metabolism; but if overtaxed by an unusual ingestion of glucose, hyperglycemia and a consequent, glycosuria might result. This explanation has occurred to me in connection with my case of cancer accompanied by intermittent glycosuria and that it is not entirely hypothetical is indicated by the observations of Ssobolew, confirmed by Herzog, that in some cases of permanent diabetes the pancreas exhibits a great diminution in the number of islands and in some cases an entire disappearance.

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[5] *Ziegler's Beiträge*, 1903, xxxiv., 199.

This functional deficiency, however, is far from proven, and in mentioning it I do not wish to be placed in the position of advocating pancreatic origin for all forms of diabetes. We have a definite basis for ascribing a certain portion of the cases of diabetes to lesions of the pancreas; but here we must rest until an increase in our knowledge allows further conclusions. It is probable as suggested by Naunyn that with the pancreas other organs preside over carbohydrate metabolism, though perhaps in a less degree, and that the pancreas may act vicariously for them, although their function may not be sufficient to be substituted for that of the pancreas.

Another point brought out by this investigation of cancer of the pancreas is the resistance of the islands to invasion or obliteration by the new growth and the accompanying sclerotizing inflammation. Numerous unaltered islands were frequently seen in the fibrous tissue at the margin of the growth where the acini had been completely destroyed; moreover, these structures, both at the edge of the tumor and in distant portions of the organ, were often three to five times larger than normal. This persistence indicates the resistance of the islands and the increase in size suggests a hypertrophy possibly compensatory in character. No cases of complete involvement of the organ by cancer similar to those of Litten and Hansemann were seen; in the few instances of extensive invasion a sufficient amount of the organ, by analogy with the partial extirpation of v. Mering and Minkowski, remained to carry on the internal function of the gland.

Whatever the ultimate explanation of diabetes may be, it must be admitted that our knowledge of pancreatic diabetes has been largely extended by the recent studies of the islands of Langerhans. And here it may be pertinent to inquire what evidence have we that the islands from their anatomy, development and appearance in diseases other than diabetes are independent structures concerned in carbohydrate metabolism.

From the discovery of these structures by Langerhans in 1869, until within a few years, many and varied efforts have been made to explain their origin and function. They have been regarded from time to time as nervous elements, primary ducts, embryonic remains and as immature or wasted acini. The study of the ductless glands is largely responsible for the recognition of the similarity of structure of the islands and these organs. The structure of the islands—columns of cells rich in protoplasm, lying in an abundant vascular network of a sinusoidal character and with no excretory duct—naturally suggests as their function the elaboration of some substance destined to be introduced into the circulation. This theory of the independence of the islands, first advanced by Shäfer, received considerable support from the experiments of Ssobolew. He found that after feeding animals on carbohydrates the islands became granular, indicating, according to his interpretation, a greater functional activity due to the increased demand for a ferment essential to carbohydrate metabolism. Furthermore he found that in the sclerotic atrophy following ligation of the ducts in animals the islands are not implicated and glycosuria does not result. These observations have been confirmed by Schulze. A similar persistence is frequently seen in the human pancreas in the sclerosis following duct obstruction; and has also been observed by Schlesinger, Opie, Condon[6] and myself[7] in the peculiar fibrous induration of the organ which occurs, not infrequently, in congenital syphilis.

Again, in the embryonic development of the islands we have evidence that they are destined for some special function. As I have recently demonstrated[8], the islands at an early stage of the growth of the pancreas arise from the primary acini and for some time remain connected to these structures by a solid process of cells; but eventually become entirely separated, and with the development of a blood supply proportionally greater than that of the acinus, become anatomically independent. Such anatomical differentiation argues for a special function, and taking into consideration the recently accumulated knowledge, the result of pathological investigation, we are forced to the conclusion that this function is an internal secretion concerned in carbohydrate metabolism and therefore of fundamental importance in any consideration of diabetes. This, however, is not equivalent to saying that all forms of diabetes may be traced to functional or structural changes of these structures. Fully one-half of the reported cases studied with regard to lesions of the islands show no alteration of these structures. That several forms of diabetes exist and that other organs than the pancreas are concerned in their etiology is evident; but this does not detract from the value of our recently acquired knowledge of pancreatic diabetes. The manner in which the hypothetical internal secretion of the islands is supposed to act comes under the head of chemistry and metabolism and will doubtless be considered by Dr. Edsall.

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[6] *Trans. Chicago Path. Society*, 1899-'01, iv., 200.

[7] *American Medicine*, 1903, vi, 1020.

A consideration of diabetes would be incomplete without a consideration of the forms of glycosuria apparently dependent upon changes in organs other than the pancreas. As little however has been added in recent years to our knowledge of these conditions, I will speak of them but briefly. The forms of glycosuria associated with acromegaly, with cirrhosis of the liver, with arterio-sclerosis, and especially the diabetes of hæmochromatosis, in the light of recent investigations would appear to have a relation to disease of the pancreas.

Thus in acromegaly chronic inflammation of the pancreas has frequently been found at autopsy and it is probable as suggested by Opie, that "induration presumably analogous to that which acromegaly causes elsewhere occurs also in the pancreas and where sufficiently advanced produces glycosuria or even permanent diabetes."

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[8] *American Journal of Anatomy*, 1903, ii, 445.

The frequency with which arterio-sclerosis is associated with diabetes renders it probable that this condition by affecting the nutrition of the pancreas may be the cause of changes, inflammatory or sclerotic in nature, leading eventually to diabetes.

That the diabetes accompanying cirrhosis of the liver may, in many cases, be due to a coincident chronic pancreatitis, the result of a common etiological agent is indicated by the studies of Lefas, Opie and Steinhaus[9]. A more striking example of the dependence of chronic lesions of the liver and the pancreas upon a common etiological factor is hæmochromatosis (*diabête bronzé*). This condition, first described by v. Recklinghausen, is characterized by the extensive deposition of an iron-containing pigment in the cells of various organs and tissues, and is associated with a necrosis of the parenchymatous cells and a proliferation of the stroma. The liver and pancreas suffer most, the former being the seat of a hypertrophic cirrhosis, the latter of a chronic pancreatitis. The diabetes occurring in this condition has been explained by some writers as the result of the blood destruction, by others as the result of the pancreas lesion. Opie, in one case, found the inflammation to be of the intracinar type with involvement of the islands of Langerhans; and therefore concludes that this lesion is responsible for the occurrence of diabetes. In his case, however, diabetes did not exist owing to the incomplete destruction of the islands; the patient dying of typhoid fever before the disease had reached its height.

It is well established that glycosuria, temporary or otherwise, may follow lesions of the central nervous system and perhaps also of the sympathetic and larger peripheral nerves. Claude Bernard's classical *piqûre* of the floor of the fourth ventricle in animals, lesions (haemorrhage, tumor and softening) of the same location (medulla) and various pathological changes of the brain and cord in man illustrate this relation. We have, however, no definite information and Naunyn's theory that through the secretory or nutritive nerves we have a disturbance of function in the organs presiding over carbohydrate metabolism, is as satisfactory as any other.

In experimental phloridzin diabetes it has been demonstrated that a true hyperglycemia does not exist and that the glycosuria is due to an injury of the renal epithelium which allows an escape of the sugar normally present in the blood. An analogous condition (renal diabetes) in man has been suspected but not proven.

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[9] *Deutsch. Arch. f. klin. Med.* 1902, lxxiv.

The influence of the adrenal gland upon carbohydrate metabolism has already been mentioned.

The relation of the thyroid gland to glycosuria is unexplained. Hansemann has collected fifteen cases in which diabetes and exophthalmic goitre were associated. Alimentary glycosuria is also frequently seen in this condition, according to Chvostek in sixty-nine per cent. of all cases; and it has also been observed after the therapeutic use of thyroid extract. It is worthy of note, however, that in none of the cases of diabetes associated with exophthalmic goitre has the condition of the pancreas been studied (Opie).

I have attempted to place before you in this brief summary the relation of the pancreas and especially the islands of Langerhans to diabetes. If I have dwelt too strongly upon this point it is because the knowledge of this relation enables us to sharply separate at least one form of diabetes from all others, and thus offers a definite point of departure for the study of those forms of glycosuria which, from our knowledge of the complexity of carbohydrate metabolism, we assume may be due to disturbances of other organs.

II. THE PHYSIOLOGICAL CHEMISTRY OF DIABETES.

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The subject of the physiological chemistry of diabetes has been assigned me; but, since it is manifestly impossible for me to give even a slight sketch of so large a subject, in its entirety, I shall ask your attention chiefly to only one of its phases. This phase I have chosen because it is just now exciting much interest and is being largely experimented upon, and because it touches upon many important lines of work in connection with carbohydrate metabolism in general.

An apology may, perhaps, seem due, when I tell you that the particular question that I intend to discuss is so obscure as is the nature of diabetes. I have not the excuse of being able to present a review of any recent decisive facts; I choose the subject merely for the reasons already mentioned, and because such strong claims are now being made by a party of active experimenters concerning a theory of the disease that in its essence is already quite old, but that these experimenters, in the light of new observations, consider likely to demonstrate the nature of diabetes and, indeed, to go far toward clearing up our views as to the course of normal carbohydrate metabolism.

More than a decade ago, Lépine aroused great interest by his statement that the blood normally has the power to destroy sugar through the action of a glycolytic ferment, and that this ferment is absent or greatly reduced in diabetes. It is not necessary to review the older work on this question in any detail. The observations of Seegen, Kraus, Arthus, Minkowski and others cast doubt upon the reliability of the methods of Lépine and his followers, and largely negatived the conclusions that had been reached by them; and it has been quite impossible for the adherents of this theory to demonstrate that blood normally has sufficient power of sugar-destruction, either by ferment-action or by other means, to account for more than a small fraction of that which goes on daily in every normal person. Besides, there has been absolutely no satisfactory demonstration that the blood of diabetics shows any important differences in this particular from that of normal persons.

Lépine himself has suggested several modifications of his theory, and has to a large extent dismissed the view that the pancreas influences sugar-metabolism by furnishing the blood with a glycolytic ferment. In place of this theory, he has suggested that many of the tissues furnish a glycolytic ferment and that the pancreas merely regulates the action of this ferment; also that in normal circumstances substances that interfere with sugar-metabolism are produced in the organism, but are destroyed or antidoted by some substance furnished by the pancreas; while in diabetes, this does not occur (a possibility that has long been considered). Finally, he has recently leaned toward the view that sugars normally undergo some special combination with other bodies, and in this form cannot pass the kidneys; while in pancreatic diabetes there is only an insufficient amount of combining bodies. Much of the sugar, therefore, circulates free as such, and can then pass the kidneys and be excreted in the urine.

Lépine and Blumenthal, in particular, some years ago contributed some experiments which they believed indicated that the pancreas and other tissues provide a glycolytic ferment. The latter author has, within the past few years, been especially emphatic in this view. These authors' contributions have, however, been criticised by various other investigators and their conclusions have not been generally concurred with. Among the important criticisms, I shall mention only those of Umber and of Bendix and Bickel.

Umber demonstrated in a most painstaking way the extreme importance of bacterial action in experiments on glycolysis—a point that has always been evident, but by no means clearly appreciated. He also showed strikingly the great practical difficulty in preventing error through bacterial action. His results showed, he believed, that no marked sugar-destruction is produced by pancreatic tissue alone when this error is excluded. The slight sugar-loss that had been observed by others could, he believed, be attributed to the general oxidative action common to all tissues.

Bendix and Bickel have recently thrown doubt upon all the earlier, and certainly upon many of the later observations concerning glycolysis. They refer to the imperfect elimination of bacterial action; and insist upon the importance of the observation of Lobry de Bruyn, that sugars may undergo stereochemic changes in even weak alkaline solutions, with the result that a serious error may occur in subsequent estimations of the amount of sugar in these solutions. Furthermore, they contribute some important observations relating to the inaccuracy of the methods in use for estimating the sugar in blood or in other albuminous solutions. These methods have long been known to be more or less inaccurate, but Bendix and Bickel make much clearer the extent and importance of these inaccuracies and the excessive difficulty in overcoming them.

In view of this state of things, there have been few that have considered the existence and importance of a glycolytic ferment in the blood, or even in most animal tissues, to have been clearly established; and there have been none except the partisans of the theory that have admitted that there is any actual evidence that absence of or reduction in such a glycolytic ferment produces diabetes. The possibility that such a ferment exists in many of the tissues has been granted by all, as has also its possible importance in diabetes; but, even granting its existence, broad-minded investigators have never tied themselves to a belief that this wholly clears up the nature of that disease. There must still remain the necessity of demonstrating that this ferment is reduced in diabetes, as well as the much more difficult problem of showing that such a reduction explains the whole symptom-complex of the disorder. From the various facts at our command, the latter point appears to me to be something that will probably never be demonstrated.

During the past few years, however, there have appeared some important articles, which have actively increased the interest in this question. Lépine and Blumenthal, as already stated, thought that they had demonstrated that glycolysis is produced by various tissues; and Blumenthal believed that he had shown that this is not dependent upon the integrity of the cells of these tissues, since it occurs when the expressed juice is used, the cells being thereby entirely destroyed. He also made attempts to isolate the ferment, and believed that he could obtain it in dry form, though impure. These results were severely and, for the time being, almost conclusively criticised by Umber, who demonstrated that much, at least, of the glycolysis observed was due to bacterial action; but Feinschmidt and Arnheim have recently repeated Blumenthal's work under more satisfactory conditions, and have amplified it. They, too, claim that the juices of various organs (pancreas, liver and muscle) produce glycolysis; and that the substance causing this glycolysis may be precipitated, and may thereby be roughly isolated in dry form. Stoklasa and Czerny, and also Simacek, have claimed during the year to have demonstrated that various organs produce glycolysis, and to have been able to isolate two different forms of glycolytic ferments; they likewise make the interesting statement that they have used a hydrogen atmosphere, and have found that this causes glycolysis to occur with great intensity. Feinschmidt, following this suggestion, states that he has confirmed this last observation.

In the meanwhile, events have taken a new course, through the publications of Otto Cohnheim and Rahel Hirsch, who, quite independently, but coincidently, have studied the effects of mixtures of pancreas with other organs upon sugar destruction, and both have apparently obtained striking results. Cohnheim has determined that the juice of the pancreas, as well as that of the muscles, shows, when acting alone, no glycolytic action; but that when the two are mixed, a very active sugar-destruction occurs, the loss being so large that it may be brought into direct comparison with the amount used by human beings under normal conditions. He believes that this demonstrates that sugar is normally destroyed through the combined action of the pancreas and the muscles, and suggests two possible ways in which this may occur. The first is that the muscles may produce a glycolytic ferment that is of itself inactive, but is activated by a kinase produced by the pancreas; this kinase resembling the enterokinase of Pawlow, which sets in motion the action of trypsin. The other possibility is that the muscles and the pancreas furnish two substances resembling the complement and the intermediate body of Ehrlich's theory of immunity; these are powerless to act separately, but when they act together glycolysis occurs. This activation or linking, whichever it may be, is absent when the pancreas is removed or when its function suffers; thus the sugar escapes destruction and produces hyperglycemia and glycosuria, and the person has diabetes.

Rahel Hirsch, proceeding upon Hofmeister's suggestion that the pancreas may provide a kinase that activates the glycolytic ferment of the liver, studied the influence of pancreas upon the glycolysis produced by hepatic tissue. She found that while the liver alone has some glycolytic action, the pancreas alone has none; but that mixtures of liver and pancreas produce an exceedingly active glycolysis. She is guarded in drawing conclusions from these observations, suggesting that the effect may not have been due to the influence of the pancreas upon the glycolytic ferment of the liver, but merely to its hastening the breaking-down of the liver cells, whereby the hepatic glycolytic ferment is rapidly set free, and the glycogen of the liver is also rapidly freed from combinations with proteids and hence quickly acted upon. Hirsch acknowledges, too, that even granting her experimental hypothesis to be correct, its importance in actual physiology yet remains to be proved; for it may be that the process observed has little or nothing to do with normal sugar-consumption. She refers, however, to the fact that Jacoby, Blumenthal and Feinschmidt have found glycolytic ferment-action absent in the livers of diabetics, though present in normal persons.

Blumenthal, in a recent article, reviews his own work and that of others, and formulates a happy scheme whereby the whole general plan of carbohydrate metabolism may, he suggests, be cleared up. He thinks that a glycolytic ferment is provided by practically all the tissues. This ferment is not allowed to act in the blood-stream, however, for if it were, the energy needed by the tissues would be set free in the blood and mostly lost. Hence, the ferment is bound fast to the leukocytes, and is by them carried to the muscles and the other tissues by which it is needed. It is then set free, and is activated by the pancreatic kinase; and thus, the sugar is consumed. In diabetes, the pancreatic kinase is reduced in amount or entirely absent and therefore sugar-consumption suffers more or less severely. The fact that the tissues in general exert some glycolytic action, and that this takes place even in the absence of the pancreas, explains the circumstance recently pointed out by Lüthje, that some sugar-consumption occurs even in experimental diabetes (in dogs) produced by removing the pancreas. Blumenthal ends by predicting the almost certain advent, in the near future, of a rational method of treating diabetes, through injection of an isolated glycolytic ferment.

When one scans the facts at command somewhat critically, one can scarcely feel willing to assent to the optimistic views of Blumenthal, or even to all the conclusions of Cohnheim; although the latter have already taken a strong hold upon the minds of many that are interested in this question. In expecting some good from the administration of a glycolytic ferment, one would have to jump over many practical and scientific difficulties; and this suggestion is at present so far separated from working facts that it had best be dismissed altogether.

As to the other points, one must first appreciate the fact that the term "ferment" is now used in a rather loose way, and has lost much of its original significance. Among those working upon such questions, it is customary to consider the presence of ferment-action to be demonstrated when it has been shown that tissues or their juices exert a special action that cannot be observed after they have been boiled. In many instances this has been proved to be true only of the ground-up tissues, which contain many intact cells; and even when the expressed juice has been used and the action of intact cells has thereby been excluded, the experimenters have usually merely determined that boiling stops the action. They have usually not proved that the substance acts in minute quantity or that it acts merely by its presence, without destroying itself; in other words, in many instances it has been shown only that tissues or tissue-juices produce chemical changes, and that these changes do not occur when the tissues or their juices have been boiled. There is some question whether this broad use of the term ferment is justifiable; and whether, if by such means it be demonstrated, for example, that sugars are destroyed by the tissues in general, very great advance will have been made beyond the theory of "vital" action. Common experience shows that animal tissues must destroy sugar in some way, and it is doubtful whether such experimental results if applying to the tissues in general will bring us very much closer to a proper understanding of the question. The results are, of course, of more definite interest if they indicate that one organ alone possesses this power, or that it resides in but a few organs or tissues; or if they demonstrate that there are definite and constant products yielded by the process.

Looking at the matter in the form in which the term is at present accepted, however, one must agree to the following statements:

A glycolytic ferment has been shown, by Jacoby and others, to exist in liver tissue *in vitro*, and it is probable that it is present and acts during life as well. It is not positively determined whether such a ferment exists in the muscles. Brunton and Rhodes, Blumenthal, Stoklasa and Czerny, Simacek, Feinschmidt and Arnheim claim that it does; while Cohnheim says that it does not. Against the position of most of those that claim positive results it may be fairly objected that bacterial action has not been satisfactorily excluded or that the results have been inconsequential. In regard to the pancreas, all the positive results with this organ except Feinschmidt's, Arnheim's are subject to the same criticism, and are, therefore, not wholly convincing; and, at the same time, they are opposed to a number of important negative results. Hence, there is no entirely satisfactory evidence that the pancreas provides a glycolytic ferment. It is possible that it does; but if one admits that it does, one must at the same time acknowledge that there is equally good evidence that other tissues provide such a ferment. If this be the case, nothing definite has been proved concerning the nature of diabetes; for it is known that the pancreas has a peculiar and individual importance in relation to this disease, and this relation cannot be explained by means of a function that this organ freely shares with other tissues. Simple, direct glycolytic ferment-action, therefore, however it may be looked at, seems to be entirely inadequate to explain normal carbohydrate metabolism; and disturbances in simple glycolysis are almost certainly not the sole cause of diabetes.

As to the more complex glycolytic processes discussed by Cohnheim and Hirsch, our knowledge concerning them is still in its infancy; and conclusions must, therefore, be drawn with much caution. The hypotheses of these authors seem very reasonable and attractive, and one may properly expect that their observations will prove to be in some degree correct. Stoklasa and Simacek claim that Cohnheim's results were due merely to a summation of the effects of muscle and of pancreas, and not to any peculiar combined action, and this might be an explanation of some of Hirsch's results, although it can hardly be considered to explain her last experiment. Before this objection can be sustained, however, these authors must make good their contention that all organs exhibit a glycolytic action. Hirsch's criticism of her own experiments, which has already been mentioned (namely, that the results obtained may not have been due to the influence of the pancreas upon glycolysis, but to its influence upon the disintegration of the liver-tissue), is very weighty, and applies to some extent to Cohnheim's work; and her remark that, even if the experimental results have been correctly interpreted, it is not yet clear that these results have any bearing upon actual carbohydrate metabolism, applies equally well to Cohnheim's work. I also find it somewhat difficult to overlook the fact that in Hirsch's experiments marked glycolysis apparently occurred only after some time had passed, while in Cohnheim's it occurred chiefly within the first few hours. Cohnheim emphasizes the last-mentioned fact in his own observations, and states his belief that this shows that bacterial action played no part in his results. He did not, however, protect himself by taking cultures; and he has, perhaps, overlooked the fact that Umber has demonstrated that bacterial glycolysis sometimes occurs even when toluol is used; and that when it does occur, it is particularly within the first twenty-four hours, before the antiseptic has become well mixed with the fluid.

Objections, then, may be raised to the hasty and sweeping acceptance of the hypotheses and results of Cohnheim and Hirsch. Even, however, should their conclusions be accepted, a satisfactory explanation of the question under discussion has not yet been furnished, and we are probably still at a distance from even a general view of the metabolism of sugar and of the disturbances in sugar-metabolism that occur in diabetes. There are many reasons for the belief that carbohydrate metabolism does not begin and end with simple, direct sugar-destruction; there are, on the contrary, probably many and devious complexities in this process. Both experimental work and clinical observation have contributed facts of importance in this connection.

One striking circumstance that has frequently been emphasized is that in severe diabetes the glycogen of the tissues largely disappears. Many writers believe that, because sugar is not properly consumed, the tissues experience "sugar-hunger," and that the glycogen-reservoirs are constantly being stimulated to discharge their store as sugar, in attempting to do their part toward supplying the demand. This hypothesis would explain the glycogen deficit; but it is purely an hypothesis, and is not justified by analogies. It is equally proper—indeed, I think that for many reasons it is more proper—to suspect that something is wrong with glycogen-production or glycogen-retention.

There are also a number of facts concerning experimental pancreatic diabetes that make it appear improbable that the pancreas merely furthers sugar-destruction. Chauveau and Kauffmann claim to have shown that sugar-estimations in arterial and in venous blood give the same results in diabetes as in normal circumstances, and to have demonstrated that consumption of sugar occurs in both. This indicates that sugar-production, rather than sugar-consumption, is at fault in diabetes. These results have been questioned by other experimenters, and their accuracy is doubtful—largely because the methods of study are difficult and somewhat unreliable. It has, however, been pretty thoroughly demonstrated by Kauffmann, Kausch and Marcuse, that diabetes does not occur when the liver, as well as the pancreas, of birds or frogs has been extirpated. In such cases, the blood-sugar actually disappears, and is therefore consumed in some way, in spite of the absence of the pancreas. Montuori has also shown that the hyperglycemia that occurs after the pancreatic vessels have been tied is not observed if the liver-vessels have also been ligated; and Kauffmann demonstrated that section of the spinal cord at the level of the first dorsal vertebra prevents the occurrence of diabetes after the removal of the pancreas. It is also a remarkable fact that in fowls extirpation of the pancreas causes a disappearance of the glycogen of the tissues and a marked hyperglycemia, yet no glycosuria occurs. These creatures, therefore, evidently use up the sugar in some way, and have not lost the power of oxidizing it.

In this connection, the recent work of Lüthje is interesting; since he has demonstrated that when a dog's pancreas is removed and the animal is subsequently starved to the point at which glycosuria ceases, the blood still contains a quantity of sugar that may even be somewhat in excess of the normal. It seems to me not improbable that this may mean that the difference between fowls and mammals in this respect is simply one of degree, rather than of kind; for it shows that mammals still oxidize some sugar after the pancreas has been extirpated. It is not improbable that they excrete some of the sugar, while birds do not, merely because the kidneys of mammals pass sugar as it exists in the blood in diabetes more readily than do those of fowls.

It is insisted by many that the studies of the respiratory quotient carried out by Weintraud and others have shown a reduction in sugar-consumption in diabetes. This, however, is not absolutely final evidence; and even if these authors' conclusions are correct, it is possible that the reduced oxidation is partly or wholly a secondary result of the hyperglycemia or of other disturbances. As analogous conditions to this, Pflüger refers to the fact that phosphorus fumes and oxidizes in an atmosphere containing dilute oxygen, while in a concentrated oxygen-atmosphere no oxidation occurs; and also to the fact that animal tissues cannot use oxygen when delivered to them in concentrated form, while they, of course, do use it constantly as normally received, *i. e.*, in dilute form.

My own doubt whether imperfect sugar-destruction alone is the explanation of diabetes has been accentuated by some recent observations concerning the diet of diabetics. For many years it has been known that diabetics assimilate various sugars in very different manner; in particular, that they often take levulose well and even make glycogen from it, while they assimilate dextrose more or less badly. This has always been a strong point against the view that diabetes is simply diminished oxidation of sugars. Much interest has lately been excited by the observation of Mosse that some diabetics do well when a large amount of potatoes is given them, and by the similar observation of v. Noorden that oatmeal is sometimes taken with advantage, in large quantity. Not only are the general condition and any signs of intoxication benefited, but the glycosuria may also improve; yet other carbohydrates make matters worse in most of these instances. There are, however, many diabetics that cannot take potatoes or oatmeal with advantage.

As far as is known, the products of the digestion of these various carbohydrates show only relatively unimportant differences. I think, however, that one must reckon with the possibility that various kinds of sugar, or, perhaps, of combinations of sugar with proteids or other substances, are produced in the digestion and assimilation of these different carbohydrates; and that these various sugars or the combinations formed by them undergo assimilation in different ways and with varying degrees of readiness. This view seems largely speculative; but it is justifiable speculation—particularly when one considers the remarkable facts that have recently been demonstrated concerning the biologic reactions of proteids, and remembers, at the same time, that sugars undergo combinations with proteids, both in the depots in which they are deposited and probably also in the blood-stream—although the nature of the combinations in the latter situation is somewhat obscure. One may also keep in mind the fact that the distinctions between the carbohydrates, both simple and complex, have within recent years become much more intricate and minute, and are even yet far from being completely known. It is not impossible that in their behavior—in the organism, at least—carbohydrates may exhibit biologic peculiarities analogous to those shown by proteids. The observations of Leube, recently confirmed, by Mayer, distinctly suggest this. They show that glycogen, when injected subcutaneously, is entirely assimilated, while dextrin produced from starch is not; yet glycogen, so far as is known, passes through the dextrin-stage in the organism. If the latter is true, glycogen-dextrin and starch-dextrin have some peculiar and obscure biologic differences.

Another observation of interest in this connection is that made by Neuberg and Mayer in relation to the effect of the subcutaneous administration of the three mannoses. Those substances, although isomeric, have been proved to meet strikingly different fates in the organism, dependent upon their structural configuration and, to some extent, upon the animal into which they are injected. Two of these mannoses, which are in ordinary circumstances poorly used by the organism, are much better assimilated when the animals have been starved. The interesting point, however, is the difference in the way in which the organism handles the three.

The facts just mentioned may appear compatible with the view that reduced ferment-action alone produces diabetes, if one accepts the testimony offered by Bourquelot and others, which indicates that at least some sugars, and possibly all, are especially fitted to individual ferments; while these same ferments act less energetically upon other sugars. It may be thought that normal human beings and other animals provide a host of ferments for sugar, as well as for other foods, and that the peculiar response to different carbohydrates is due to abnormalities in certain of these ferments, but not in others. If Ehrlich's conception of immunity and of nutritive processes be correct, such a possibility must be admitted; but even if one admit this, one must still consider that synthetic processes have an importance certainly equal to that of oxidative processes in explaining the many facts known concerning normal carbohydrate metabolism and spontaneous or experimental diabetes.

The cause of all these peculiarities in diabetes and in the behavior of the organism toward various sugars is still very obscure. I have not discussed this matter because there is any satisfactory explanation at hand, but because I think it important to recognize that, along with the discussions on glycolysis, there have been accumulating a large number of facts suggesting that carbohydrate metabolism is a much more intricate process than is indicated by the simple term glycolysis, whether this be complex glycolysis, such as Cohnheim and Hirsch describe, or the more simple glycolysis of Lépine and his followers. In the course of metabolism the carbohydrates, in all probability, go through much more complex processes; and some of these certainly have largely to do with synthesis, rather than with oxidation. Clinical observation, as well as experimentation, will carry one much further if undertaken from such a standpoint, than if carried out with a narrower conception of the conditions.

While, as I have stated, the question is still extremely obscure, there are some facts and suggestions other than mere glycolysis that offer at least working hypotheses; so that one is not wholly lost if one admits that disturbances of glycolysis do not provide an entirely satisfactory explanation of the condition. Some of the curious circumstances of carbohydrate metabolism would be cleared up if it could be shown that the possibility mentioned, (i. e., that sugars are far more varied in their nature and in the combinations that they undergo than they are now known to be; or, perhaps, than present methods can demonstrate them to be) is an actual fact. Again, the difficulty in diabetes may be largely one of glycogen-construction, as Naunyn believes. It is also not impossible that it may be, as Pflüger considers probable, and as others have thought before, one of excessively rapid diastatic conversion of glycogen into sugar. The function of the pancreas, in this case, Pflüger would consider to be the production of an antidiastase, similar to other antiferments that are now known to exist; this antidiastase normally regulating the production of sugar from glycogen, while in its absence this goes on constantly and with undue haste.

It is also possible that the trouble at times lies in the condition of the sugar as it circulates; and there is good reason at present for active work to determine whether this idea is correct or not. It is not definitely known in what form glucose circulates in the organism; whether it is in free solution, or in solution in some peculiar loose combination. It may be, as, I believe, Schmiedeberg suggested, that in diabetes the sugar enters into some combination that makes it pass the kidneys with peculiar readiness; or the contrary may be true, and the sugar may normally be in combination, while the combining substances fail in diabetes, and the sugar then circulates in free solution and is thereby readily excreted through the kidneys.

The recent work of Loewi makes this possibility seem somewhat definite. Sodium chlorid, for example, seems to circulate in free solution; while the phosphates are probably in colloidal combination. Loewi finds that the production of diuresis causes a marked increase in the excretion of sodium chlorid, but not in that of the phosphates. If, however, a large quantity of phosphates be injected, free diuresis will then produce a marked increase in their excretion. This suggests that the phosphates normally present at the time of this experiment were combined; and that when a large excess was suddenly injected, the combining bodies did not suffice, hence the excess could be readily carried off by energetic action on the part of the kidneys. Loewi then showed that in dogs with pancreatic diabetes, increased diuresis increases the sugar-excretion; while in dogs with phlorizin diabetes, this does not occur. In pancreatic diabetes, there is hyperglycemia; in phlorizin diabetes, there is probably none. From analogy with the phosphate experiments, it seems wholly possible then that the increased diuresis in the dogs with pancreatic diabetes carried off more sugar because this sugar was in free solution, combining-substances being present in an amount insufficient to hold most of it in the circulation.

Loewi considers that this combination that sugars perhaps normally undergo is colloidal. Henriques has suggested that jecorin is the form in which sugar circulates, and he and Kolisch and Stejskal offered some observations in support of this view. Bing believed that the combination is lecithin-glucose-globulin. Cremer attempted to show that the sugar is in combination with albumin; but he convinced himself that this is not the case.

I have mentioned briefly most of the important theories concerning the nature of diabetes. The important facts known are unfortunately very few. When sifted down, they are found to be chiefly that the pancreas possesses an extremely important influence over carbohydrate metabolism; and that it is not known in what way this organ exerts its influence, except that it probably does not do so merely through providing a glycolytic ferment, but possibly through influencing the glycolytic activities of other tissues. Finally, it is becoming increasingly evident that carbohydrate metabolism is intimately associated, not only with the pancreas, but also with other tissues, and it is constantly assuming greater complexity than it has generally been conceived of as exhibiting. At present one is justified in suspecting, at least, that carbohydrate metabolism is of a complexity that is comparable with that of proteid metabolism. This view is certainly not at variance with clinical experience regarding the differences in different cases of diabetes and in their behavior toward various forms of dietetic and other treatment, and it is not impossible that the conflicting results and conclusions of many investigators may be reconciled in many instances by determining, in the future, that diabetes differs in its nature, and that many of the disagreements are due to the study of different conditions.

III. MEDICAL TREATMENT OF DIABETES.

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The pathology of diabetes mellitus has been the most elusive problem of modern medicine. Repeatedly during the past forty years we have seemed to be on the verge of important discoveries relating to it, only to find that our uncertainties, instead of being dispelled, had simply taken new forms, which in turn have raised other problems to solve.

It is, of course, due to the great obscurity resting upon the physiological mechanism for the disposal of the carbo-hydrates of food in the system that the pathology of diabetes has remained so uncertain. Fifteen years ago, in a symposium like this, held at a medical gathering in New York City, I suggested that we were yet without any knowledge of a seemingly important factor in the problem, and that was the relation of the muscular tissues to the utilization of the saccharine elements of food. The facts which we did know then were that the muscular tissues were virtually the chief generators of animal heat, and that quite apart from their function of contraction and of relaxation was their function of oxidation, so that the blood collected from the veins of a large muscle like the gluteus, though the muscle were at perfect rest, yet contained less oxygen and more carbon dioxide than the blood of the right ventricle itself, as this latter was mixed with blood from the great glandular viscera where oxidation is less active than in muscle. This shows how much burning up of blood contents occurs when the blood is coursing through muscular tissue, and as the chief material for such oxidation consists of carbo-hydrates, some failure in this muscular function might have much to do with the pathological failure of sugar oxidation in diabetes.

This suggestion was received with incredulity, and most of the speakers confined their attention to the supposed relations of the nervous system and of the glycogenic functions of the liver to this disease. Not long afterwards the pancreas in its relation to diabetes came to the front, and has maintained its place as one important factor in the problem ever since. Lately the news comes that O. Cohnheian finds that an enzyme is produced in muscle, which, if alone, does not act upon sugar, but when mixed with the secretion of the pancreatic cells of Langerhans is a very energetic solvent, in the same way that trypsin becomes effective only when conjoined with the kinaise ferment in the intestine.

Until physiology becomes settled, pathology cannot be settled; and, therefore, therapeutics, while matters so stand, must remain mainly empirical. And so I confess that I regard the subject of medical treatment of diabetes, which has been assigned to me, one to which I can contribute little beyond the results of my experience, based upon written notes of the histories of patients whom I have treated in the course of years.

To the question—when does glycosuria mean diabetes? my answer is that we do not know. That glycosuria, limiting that term to dextrosuria, is an epiphenomenon, appearing in the most diverse connections, we all know. Like albuminuria, it occurs too often and too variously as a temporary accompaniment of different disorders to be rated as no more frequently than a symptom. In the case, however, of albubinuria we usually can form some conception of its causation. But with glycosuria we do not know whence it cometh, nor whither it goeth; and, therefore, we can never be sure what its significance is. Hence, I feel skeptical about the assurance with which some pronounce offhand a given case as one only of glycosuria, and another as surely diabetes, because in my experience some patients come with both a moderate and an intermittent presence of sugar in the urine, and with no constitutional disturbance, but who in time develop into confirmed diabetics, while others may come with very saccharine urine and severe constitutional symptoms, only to improve under treatment and finally get well. Nor does the recent date of the disorder make much difference. Some begin suddenly and soon develop grave symptoms, and then become permanently free from their trouble, while others begin just as suddenly and never get well. The only valid distinction which I admit is that the presence in the urine of diacetic acid, shown by the ferrichloride test, is generally indicative of confirmed diabetes.

My practice, therefore, is to pronounce a glycosuria, which has lasted more than a year, diabetes. Time, in other words, and not the variability either of the glycosuria, or of any other accompaniments, is my ground for diagnosis. Persistent glycosuria in its way is much the same as persistent albuminuria in its way, that is, each means that the patient has a serious disorder; and pro tanto, it does not much matter what name we choose to tack to the disorder when the question is how we are to treat it.

As it is the patient, and not his named disease, which is to be dealt with, all factors entering into his story have to be taken into account; and the first of these facts is age. The rule is, the younger the patient the worse it is for him. Why it should be so I do not know. The chief significance of this fact, however, is that it points to diabetes as a deeply-seated constitutional disorder, and not a localized disease of any one organ, pancreas or other. In keeping with this inference, is the hereditary or family proclivity to the disease in instances too numerous to be accidental, and equally so the greater liability of certain races to it. In my experience there is no race which is so subject to diabetes as the Jews. The bearing of these clinical facts upon what remedies we are to expect the most from, and also what reputed remedies we are not to expect much from, we will soon note.

The next consideration to age, is the state of the nutrition of the patient. I always make it a point to determine what the daily output of urea is, as well as the amount of sugar passed. If the percentage of urea is continuously high, there is real emaciation going on, even if the patient be fat. The sugar itself, indeed, may disappear, but the urea excretion remain one-half more or double what it ought to be irrespective of diet. The patient must have medicines for that.

The patient may be obese. This condition calls for special medication on account of danger from the heart. If he has oxalates alternate with abundant uric acid crystals in his urine, all the better for him. He may be a profitable patient to us for years, though, pace glycosurists, he should not be allowed to forget that he has diabetes,—and so on. All I wish to illustrate by this preface to my subject, announced on the card as "Medical Treatment of Diabetes," is that I would prefer to have it read, "Medical Treatment of Diabetic Patients."

As to medicine, I would begin with the statement that I but rarely prescribe opium, codeine, or any other of the opium derivatives; and I beg leave to take a short time to explain why, in such a constitutional disease as diabetes, I cannot regard this drug as of real service, though it has been long and generally recommended in text-books. Nervines, such as opium, belladonna, strychnine, aconite, etc., are agents which affect certain functions of the nervous system. They, therefore, are only functional remedies, and they have no power whatever in therapeutic doses to directly affect structure or nutrition, however long they be prescribed. All that they ever do is temporarily to produce some functional symptoms, but they never affect the texture or the nutrition of tissues of organs, either beneficially or injuriously. Therefore, none of them can touch diabetes itself, any more than they can touch typhoid fever; however, some of them may relieve for a time some serious symptoms in both diabetes and in typhoid fever. As a veteran teacher of Materia Medica, I used to urge that no functional or symptom medicine, such as the nervines, could be expected to modify an organic disease in any way, either for good or evil. The only exception being in the case of colchicum,* which can produce organic changes. Alcohol produces organic changes only by virtue of its chemical and not by its nervine properties. One of the most powerful nervines for properties is nicotine. There is a great deal of functionally active nicotine in a cigar. Let any one who has never smoked a cigar try it, and he will soon illustrate what nicotine can do. Now, my father, my grandfather and my great-grandfather began to take nicotine, by smoking tobacco, about the same time of life that I did, namely, at twelve years of age, and continued the same to the last year of their lives, which was at the age of eighty-eight, eighty-seven, and ninety-two, respectively, while I am well on to my three score and ten. Can nicotine, therefore, not injure the bodily mechanism? Never, in rational doses, for, like all other nervines, in such doses it can neither do permanent good nor permanent harm.

To this class of functional medicines belongs opium and its derivatives; and, therefore, diabetes continues progressive, however continuously or fully opium is prescribed. A functional medicine is one whose whole action can be secured by one dose. Its hundredth dose does not do any more than the first dose does, sometimes not as much, for with many of this class, as with tobacco, the system becomes used to them. A man may for many years relieve an asthmatic attack by stramonium, but it is not his disease—asthma—which is thereby dealt with, but its symptom bronchial spasm, and his last dose of stramonium does not do more for him than the first dose did, taken years before. More efficacious against his asthma itself would be arsenic and potassium iodide, which no more act in one dose than mercury does in syphilis, or iron in anaemia. The fundamental difference between functional medicines, which influence only functions, and organic medicines, which change the nutrition of tissues or organs, would be more widely recognized but for the confusion which exists in many minds about the term "function." Because function is deranged whenever organism is deranged, therefore, it is supposed that the converse of this statement is equally true, namely, that a derangement of function must always imply a corresponding derangement of organism. A simple illustration will show the difference. The function of an oil lamp is to give light. Derange the mechanism of the lamp, by a leak in the globe, or by an injury to the wick-holder, or by the loss of the wick, and the light-giving function of the lamp is correspondingly deranged. But the entire mechanism of the lamp may be perfectly intact, and yet it will give no light because the source of its function, namely, the oil, is changed by mixing it with water. So, a steam engine may be perfect in every detail of its mechanism, and yet not go, because the source of its function, namely, the coal, is lacking. So in the living mechanism, its functions need power therefor, and that power is in the blood. Functional medicines act only on and through the blood, and not on the tissues. This being so, functional medicines can act only temporarily, they have to be renewed just as the oil in the lamp has to be renewed, though the lamp itself remains the same indefinitely. The oil can remedy no injury to the mechanism of the lamp, and likewise every functional medicine is powerless against a truly organic injurious change going on in the living mechanism.

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* Dr. Norwood of Alabama, well known for Norwood's Tincture of Veratrum Viride, narrated to me how five young men in his neighborhood, while on a "spree," broke into a country doctor's office, in the doctor's absence, and drank to his health out of a bottle of wine of colchicum, which they mistook for sherry. Two of them died, but Dr. Norwood saw the survivors a number of weeks afterwords, when they had lost all their hair, including their eyebrows, and were as generally yellow as persons recovering from cobra snake venom. Now, recovery of healthy persons from the most dangerous degrees of poisoning by opium, belladoma, aconite, etc., is generally complete after 24 hours, with no lasting nutritional change whatever.

Functional medicines we need constantly in practice to relieve symptoms, or to meet emergencies. They are indispensable for such purposes, but we should always remember that all which a functional medicine can do is to deal with a temporary derangement, not in the structure, but in the working, that is, in the function, of the body; and this it does immediately in one dose. But no specifically permanent changes should be expected from it. Opium may affect the symptom, sugar in the urine, by temporarily diminishing it, but it has no effect on the disease causing the symptom.

We must look elsewhere in such a constitutional disease as diabetes than to such functional medicines as opium, and I notice that of late, experience is leading many physicians to abandon its use in this malady. For a number of years I have advocated the free use of cod liver oil in diabetes. I was specially led to do this by its remarkable effect in the case of two brothers whom I treated thirty-two years ago. The first, an active business man, age thirty-five, came to me with polyuria, thirst, emaciation and progressive loss of strength, for which he had been treated unavailingly for a year, with the usual course of diet and drugs. He then took larger doses of cod liver oil than any patient in my experience, for he said that he never measured it, but took it directly from the bottle as a drink, followed by Vichy water. In another year's time he was cured, and he has remained well ever since. His brother, two years younger, came to me the following year with much the same condition, as far as the great quantity of sugar in the urine was concerned, but he suffered in addition from general bronchitis. He found that he could stomach cod liver oil as well as his brother, and with equally good results. The younger the patient the more persistently I urge the taking of this remedy, and I adopt every resource to make its free use possible by the patient, by the administration with it of pepsin and bismuth. So long as the stomach does not rebel, diabetes patients of this class cannot take too much cod liver oil. Whether this oil acts as a substitute for the starchy elements, or whether it spares the proteids from disintegration, or whether it acts as a nerve food, or whether it acts by increasing the red corpuscles, I do not know; but as an empirical fact, I can testify that it both diminishes the sugar and the excess of urea eliminated whenever it is taken freely and is well borne. As in all cases, where we aim at influencing nutrition by any measure, it must be used both systematically and perseveringly. Obesity contraindicates it, and likewise I would not give it to patients of very sedentary habits; but it is quite useful with many elderly people.

Next to cod liver oil I would mention iron. As before remarked, I have long suspected diabetes as largely a muscle disease, and throughout the animal kingdom muscular power is directly proportioned to the intake of oxygen. As iron can act in us only in its capacity of an oxygen carrier, I try to give diabetics all the iron which they can take, along with all the fresh air which they can get. As iron in many forms tends to cause constipation, which itself not infrequently becomes a serious trouble to diabetics, a very serviceable preparation for them is the old-fashioned Hooper's Pills, whose formula is: ℞. sulphate of iron 30 grains, powdered senna, powdered jalap, cream of tartar, powdered ginger, each grs. xii, Ext. gentian q. s. M. Div. in pil. xxx.

The progress of medicine in our time has added a class of remedies which are coming more and more into daily use, and to which I would apply the term Medicinal, in distinction from surgical, Antiseptics. They include a varied list of phenol derivatives, among which I would include quinine, for sooner or later we may look for its synthetic production from coal tar, as well as the salicylicates and the benzoates. In this class of medicinal antiseptics I would also include arsenic.

It is not improbable that one of the properties of this class of medicines is to check the activity of various enzymes, which in particular states cause derangement of metabolic processes in the body, or lead to disintegration of its tissues. We are only beginning to get some insight into relations which certain internal secretions bear, on the one hand, to the assimilation of food, or on the other, to the neutralization of poisons in the system, or to the disintegration of the tissues themselves. One of the most striking facts in this connection is the singularly small quantity of the secretions themselves which seems to suffice to maintain the important functions which they subserve. Thus the total extirpation of the pancreas in dogs induces a fatal diabetes. This diabetes is ascribed to the removal of the scattered glandular structures in the pancreas, called the "islands of Langerhans." But if three-fourths of the pancreas be excised, so that only one-fourth remains, the small remnant of these island cells is yet enough by their secretion to prevent glycosuria. This indicates that this internal secretion is of the nature of an enzyme which can propogate its action from very small beginnings. The small bodies, called the parathyroids, have recently been proved to be essential to life, owing to their internal secretion neturalizing a virulent poison, generated most probably in the alimentary canal, and which poison causes fatal tetanic convulsions. So excision of three-fourths of the kidneys, leaving only one-fourth of kidney substance, is followed by death, preceded by great polyuria, with such excessive excretion of urea that it seems as if the proteid tissues were undergoing rapid dissolution. This remarkable result is ascribed to the kidneys having as their function not only to excrete, but also to regulate, the production of urea by an internal renal secretion.

However that may be, I have for some time been much interested with cases which have come under my observation of excessive excretion of urea which in a way resemble saccharine diabetes. On the fifth of last month I was consulted by a healthy-looking young man, age twenty-three. He seemed to be a typical neurasthenic, for his complaints were that two years ago he had a sudden nervous breakdown, ever since which he could not apply his mind to anything. He has a constant sense of fatigue, is very nervous and dyspeptic, especially intolerant of starchy food, and very insomnic. His pulse was soft and weak. Examination of his urine showed that he passed no less than fifty-one grammes of urea a day, while according to his size, and on his restricted diet, he should normally pass only twenty-two grammes. The total solids of the urine amounted to the high figure of 114.37 grammes, or 1,715 grains. There was no albumen, nor casts, nor sugar detectable by any tests in the urine; and he had no fever. His family history was decidedly unfavorable in the respect of neuroses, one brother being in an asylum, an elder sister with something like cyclical insanity, and another sister, younger than himself, is abnormally fleshy.

I put him on the same treatment that I would a diabetic, namely, a shellac-covered capsule, containing five grains of sulpho-carbolate of soda and one grain of potassium permanganate, to be taken half an hour after meals and at night; and one hour after meals t.i.d. a powder of ten grains of sodium salicylicate and ten grains of sodium benzoate. On the sixteenth he came again remarkably improved in all his symptoms. His urea had fallen from fifty-one grammes to thirty grammes; and the total solids had decreased 250 grains. To add now ten grains of aspirin to each dose of the supho-carbolate, or forty grains per diem. On January 16th, he reported that he was able to do more work than he had done for some years, and that he was now studying to pass a university examination.

I believe that if physicians, instead of being content in their examination with discovering whether there were abnormal ingredients in the urine of patients, would also uniformly investigate whether the normal ingredients were present in their healthy proportion, that more cases of this kind would be found than are generally suspected. What special process led to such abnormal waste in this patient, I do not know, any more than what the real processes are which underlie the disease diabetes. The processes of the chemistry of life are altogether too complex, and too imperfectly understood as yet, for us to make more than doubtful guesses. But as an empirical fact, I am sure that I succeed better in controlling diabetes mellitus, as far as the use of drugs goes, by a persistent and free administration of antiseptics than by any other means, cod liver oil and iron excepted. In such a disease the therapeutic tests should be sought for only in severe and prolonged cases; and I will beg leave, in illustration, to cite briefly one such history. He was a gentleman, age forty-two, who, after a year of severe mental strain, noticed that he was passing water very often and that his shirt when wet by the urine was stiffened by it. He was put on diet, opium and codeine, by his physician; but as he was steadily losing flesh and strength, and was subject to alarming attacks of syncope, he finally consulted me. I first saw him after one of these attacks. He was cyanosed and extremely dyspnoeic. Another attack soon occurred in which he seemed to be passing into diabetic coma. For sixteen years after this I conducted the management of his case, watching him very closely as he was a most intimate friend of mine, and, though I never found sugar absent from his urine during those sixteen years, he ably performed the exacting duties of chief editor of one of the largest of New York's daily newspapers. He then moved to another city, to enter upon a much less exacting business. I warned him that he was by no means a well man, and that he should continue his treatment without change. I learned, however, that he became quite careless, and in three months he succumbed to an attack of bronchitis. Such histories of years of active life, while keeping up treatment, soon followed by fatal decline on cessation of the same, have occurred more than once in my experience. Nature does not cure diabetes.

As remarked before, I would include arsenic in this class of antiseptics, as it comes nearer in its properties as a medicine to such agents than to any other. My usual practice is to combine it in the same prescription with them, and, therefore, I ordinarily give arsenious acid itself, watching for the development of arsenial symptoms, just as in prescribing it for any other purpose. Some of the liquid preparations, as Fowler's Solution, the Lig. arseniei hydrochloriei, or the bromide of arsenic, have the advantage that the dose may be increased or diminished more readily; but I have failed to note any special advantage in changing the form of the drug, because it is arsenic itself in them all to which the effect is due. As to the rest, their administrations should be varied from time to time, on the general principle that the too-continued use of any drug tends to lessen its efficacy, or in the case of the salicylicates to irritation of the kidneys. If called to a patient who is voiding so large an amount of sugar that a speedy reduction of it is imperative, I would give fifteen grains of antipyrin, with the same of sod. benzoas, four times a day. After a time I would substitute fifteen grains of aspirin with ten of bismuth salicylate. In subacute cases, illustrative perscriptions would be somewhat as follows: ℞. Benzosal grs. xlviii; Sod. benzoas ʒiv; Ac. arseniosi gr. i; Sod. salicylicas ʒiii. Div. in capsul xlviii s. Two an hour after meals and at night. Or ℞. Sod. sulphocarbolas ʒii, Salicini ʒi, Phenacetine ʒii, Ammon benzoas ʒiv. Ft. capsul, shellac covered,' xlviii s. Two half hour after meals; and if there be much insomnia, twenty grains of Strontium bromide, and fifteen of antipyrin, at night. Of course, each physician can vary such medication according to indications. A weekly dose of blue pill is nearly always beneficial to patients after middle life. Unless the patient be much emaciated, one of the means which work well to prevent the tendency to constipation is a powder dissolved in a tumbler of hot water and sipped slowly on rising, of a drachm and a half of sod. bicarb., half a drachm of sod. sulphas. and of magnesium sulphas. each, and ten grains of salicylicas

Alkalies, in the form of mineral waters, have always held a deserved place in the treatment of diabetes. There is, however, one caution to be always borne in mind, and that is, that the free use of all saline waters tends to increase the waste of the system, and they should not be given to any one who is really losing flesh. I think that I have seen them do harm to emaciating diabetics.

Diabetes is a very serious disease on one account alone, if not on other accounts, in that it virtually compels a starvation of an essential element of food. The system must have sugar, and if it does not get the sugar which it can use in the food, it will turn to its own proteid for sugar. Along with this profound perversion poisons begin to be generated, of which oxybutyric acid and its derivatives are doubtless only a part, and which poisoning we are practically unable to neutralize. Our function, therefore, is to put off the evil day of these terminal developments as long as possible; and to do that I am sure that merely functional medicines will afford us no help. The essentials of the chemistry of this specific toxoemia are yet unknown. The formation of acetone and of diacetic acid occurs early, but the blood itself often changes its color, owing to the abundant presence in it of fatty and of proteid granules. Something, however, holds back the carbon dioxide in the tissues, for it is a mistake to ascribe the low percentage of carbonic acid in the blood to hyperacidity, because the blood of those patients when drawn will take up oxygen or carbonic acid about as freely as normal blood. The last step is the rapid disappearance of sugar from the urine. Why sugar is absent in diabetic coma we do not know, but curiously enough the first danger signal comes from the kidneys, for before drowsiness begins the urine often deposits an enormous number of peculiar-looking casts. To postpone the well-nigh inevitable death in these conditions I rely upon the most trustworthy diuretic which we possess, namely, prolonged intestinal irrigation with hot normal saline solution, by means of the best instrument for the purpose which I know of, Kemp's rectal irrigator. Hypodermic injections of seven to fourteen grains of camphor in sterilized almond or olive oil answer best to sustain the failing heart, while diluted milk holding all the sodium bicarbonate which the patient can take is the only recourse left for food. Some of the fatal poison doubtless could be washed out, if we could bleed the patient freely and transfuse an equivalent amount of normal saline.

IV. THE GENERAL MANAGEMENT OF DIABETES.

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Although pathological knowledge affords the best basis of therapy it is not always the sole basis. We cured malaria long before we knew its cause. Syphilis was controlled long before bacteriology was born, and all that we know of the cause of syphilis to-day is that it must be dependent upon some form of living organism having the power of indefinite reproduction.

When we use the term diabetes mellitus let us clearly grasp the fact that we speak probably of a symptom rather than a disease; that the presence of sugar in the urine means a greater or less impairment, temporary or permanent, of the power of the organism to consume sugar; that while our knowledge of the starting point of such impairment is very imperfect, we have good reason for believing it may be as widely separated as Langerhans' islands in the pancreas, the liver, or several portions of the central nervous system; that during life, at least, we can rarely determine the point of origin in a given case.

Useful as the term glycosuria may be for clinical purposes as denoting the milder grades of the condition, in these brief remarks I shall, for simplicity's sake, include all grades of the failure to burn sugar under the term diabetes. Although we treat a condition and a patient, not a disease and a patient, treatment may be of much value, resulting in prolongation of life and promotion of comfort, sometimes in absolute cure. The means to the end are diet and mode of life, the rôle of drugs being, as I am sure my friend Dr. Thomson will agree, a subordinate one.

Prevention, being the highest form of medicine, comes justly first. What can we do to prevent diabetes? Very little. Human life in civilized regions unavoidably tends to become more complex, the struggle for existence fiercer, competition of all kinds, but especially among brain workers, more keen; and we must recognize nerve overstrain as one of the predisposing causes of diabetes. Even if it were practicable and wise to make periodical tests of the sugar-burning capacity of all our adult patients in active life, how many would heed the danger signal of sugar in the urine after the ingestion of a hundred grams of sugar fasting? Some even of the godly say, "Tush! there shall no harm happen unto me," showing an attitude of mind possibly more conducive to happiness and comfort in life than that of Martha, "careful in many things."

I have in mind a man approaching middle age whose great-grandmother, grandmother and mother all died of diabetes, and whose own urine has been saccharine. With such an inheritance it is fairly in place to examine the sugar combustion power of such members of the family as we can, and to enjoin a careful life as to diet and strain. Until we know far more than at present, I do not see much more we can do in either special or general prophylaxis.

Time does not permit, even if the occasion demanded, much detail; and I propose, therefore, to deal mainly with the principles which, as it seems to me, should guide us in the management of our diabetic patients. A diabetic who consults us and has not been treated should, I think, be told to collect his twenty-four hour urine for, say, three successive days, without change in either diet or mode of life, the amount of urine and sugar being important factors in the estimation of the gravity of the case. If, on the other hand, the patient is under rational treatment which has reduced or done away with his sugar it is rarely desirable to let down the bars, as experience shows that sugar production is in many cases more easily controlled the first than on subsequent attempts. In general, with the exception of cases which are evidently very mild or severe in type, it seems to me wiser to enforce an absolute or nearly absolute diet at once,—just as it is more humane to complete the shortening of a dog's tail at one rather than in successive operations. The very mild case probably does not require great restrictions. If acetone and diacetic acid are present a radical and rapid change in diet is dangerous. The striking improvement in strength, weight and general symptoms which we so often see rewards the patient for his self-denial, and thus encourages him to persevere.

So wide is the variation between the different cases of diabetes, and so emphatically do we treat the patient, the more we individualize our patients, applying general principles to special cases, the better results shall we have. The diet list should be adapted to each case. I do not like the printed lists disinterestedly furnished us by some of the manufacturers of food products. They encourage laziness and routine—those two cardinal vices. Moreover, quantity is only next in importance to quality in the food of a diabetic. An approximate adjustment of the amount of food to the requirements of the special case must be aimed at. The body weight should be noted at stated intervals, weekly during the earlier part of treatment, at longer intervals later and in the more favorable cases. I doubt the wisdom or necessity in most cases of such accuracy as some of the modern German writers seem to enjoin; and yet, although it may not be essential for the patient to provide himself with scales and weigh out his portions, nor to dine in scales like Dr. Sanctorius of old, he should be given a rough idea of the size of a given weight of bread, meat and fat. An increase in the amount of fatty food may be of importance nearly comparable to that of a diminution of starch.

The weight of the patient, his general symptoms or their lack and the condition of the urine, taken together, will generally prove safe guides as to the judiciousness of the diet. Under a strict diet the sugar and polyuria, one or both, are practically sure to diminish, and may disappear. In a favorable case I expect to see the sugar disappear in two or three weeks, the weight increasing. How long a strict diet is to be maintained must depend upon the type of the disease, which, again, largely depends upon the age and nutrition of the patient. In milder cases I believe it to be wiser to keep the patient on a strict diet for one to two months, and then to test the tolerance for starch, giving first two or three ounces of bread daily and increasing the amount weekly as toleration warrants. In more severe cases which are rendered sugar free with difficulty one must be more careful in allowing bread, and watch its effect even more closely. In the severest cases, in which the diet does not cause the sugar to disappear, it is ordinarily better to allow a fixed amount of bread. It is certainly so if under the strict diet weight and strength fall off. The sugar is then made from the nitrogenous food or the body tissues and the danger of acid intoxication is increased.

A diabetic who loses weight does so for one of three reasons: His diet is not strict enough, or it is too strict; or, finally, the case is a hopeless one. Every case is a law unto itself. Severe diabetes is not a disease for a lazy doctor to treat, or for a careless or willful patient to well endure.

As I have grown older I find that I have more and more discarded the use of diabetic breads. No diabetic bread which is palatable for any length of time is safe. We must always reckon with human greed for gold, and I much prefer to give ordinary or perhaps graham bread, the precentage of sugar-forming material in which is known, than to run the chance of deluding myself and my patients. I once visited incognito the agency of a well-known company which purveys for diabetics. "Have you bread for diabetics?" "Yes." "How much starch does it contain?" "None." "What! No starch?" "None!" My friend, Professor Wood, however, said the bread contained sixty per cent. of sugar-forming material. Gluten flour from another manufacturer had a low sugar-forming percentage one year and a high one the next.

If alcohol is considered desirable it is best given in the form of whiskey or brandy, a brut champagne, Moselle wine, or one of the California hocks, some of which contain practically no sugar.

I have never used the skimmed-milk cure as advocated by Donkin. To remove the fat and leave the sugar does not seem consistent with common sense. I concede that it has worked well in some cases, but wonder if the explanation does not lie in the fact that these patients had been eating far too much, and would have done equally well under a diet judiciously restricted in quantity as well as quality.

A day of starvation once every two or three months is very useful in some cases. Austin Flint's plan of keeping a patient in bed from Saturday night until Monday morning fasting, has seemed to me a good one. If hunger is felt a little beef tea may be a comfort without really invalidating the fast.

The bowels should always receive careful attention. All the more so if acetone and diacetic acid reactions are present in the urine. The skin also should not be neglected. Hot or vapor baths at home followed by active friction, a Turkish or Russian bath at a well-managed establishment, if the general state of the patient permits, are useful adjuvants, especially if the skin be harsh, dry and inactive. Ralfe thinks he has succeeded in preventing impending coma by the hot bath. In milder cases, with the skin still relatively active, the tonic effect of a daily cool or cold bath, provided that reaction be prompt, thorough and maintained, is of service. Diabetics are sensitive to cold, and wool or silk underclothing of light or moderate weight is usually desirable. I think we generally err in this country in the colder season by wearing too heavy underclothing. We keep our houses at summer temperature, and voluntarily load ourselves with clothing which we would think justified revolution if a czar compelled its adoption. A diabetic should have several overcoats of varying thickness and warmth, and can scarcely be too well wrapped up while driving in an open carriage, the only form of conveyance really fit to drive in except in stormy weather.

Worry and anxiety are to be avoided as far as possible. Such avoidance is—alas!—only too often easier to enjoin than to secure; but we must do our best. The man of large affairs and responsibility must be helped to systematize his work, to throw every possible detail on subordinates, and to shorten his working hours. How many of us inspect the down-town offices of our patients in active business in order to remedy defects of light, ventilation and heating of the apartments where more time is passed than anywhere save in the bedroom? In many cases the sum of small advantages forms a large aggregate, and sunshine and open fires are better classed among the greater than the small advantages. In a word, we are dealing with a class of people whose resistance and vitality are more or less diminished; in many of whom, we have reason to belivee, the nervous system is especially at fault. The desirability of moderating nerve strain is therefore obvious.

Muscular exercise is useful directly, in that it burns sugar; indirectly, in that it aids blood and lymph circulation. It is therefore peculiarly adapted to diabetics, provided that thought and intelligence govern its use. In excess it is potent for harm. Outdoor exercise is far better than in any confined space, if the condition and circumstances of the patient permit. As to the form—walking, golf, tennis, horseback—it must depend upon the purse and taste. We are all so constituted that what we enjoy is, on the chances, better tolerated than what we dislike. Calisthenics and the various forms and degrees of massage, carefully adapted to the individual patient, are for the severer cases. Patients debilitated from any cause rightly ask direction as to the amount of exercise they can take. If the intelligent co-operation of the patient can be secured, better results will follow, even in sanitarium treatment; and most diabetics are not, and cannot be, under constant supervision. The best rule I have been able to formulate is the following: The patient is told, "You exercise; you feel tired; you rest an hour and fatigue passes. That fatigue was physioloigcal, healthy, beneficial. If, on the other hand, after you rest you are still tired, you have done too much."

A change of climate during our northern winter, with all that such change carries with it in freedom from care and in the ability to be in the open air may be of great importance.

I am painfully conscious of the sketchiness of these remarks, but try to derive some consolation from the thought that, after all is said, is not he the best practitioner of medicine who, reasonable diagnostic acumen being assumed, at the expense of his own gray matter most skillfully adapts general principles to the particular needs and circumstances of the special case? In passing it occurs to me to add that, unless my experience has been exceptional, it is unusual to observe a case of diabetes from start to finish. The very rapid cases are not very common. Others co-operate heartily for a time; the restrictions then become irksome, and they sometimes shun the doctor, partly because they see that he does not attach much importance to drugs, the giving of which still represents too largely in the public mind the function of the physician, and partly because they do not want to exercise the self-denial which they feel will be demanded of them. In the milder cases past middle life perhaps no great harm results. It is the cases of medium severity which are most apt to suffer from this ostrich-like procedure. We can roughly classify our diabetic patients into those of (*a*) severe, (*b*) moderately severe and (*c*) mild type.

The classification of any given case can usually be more accurately made after than before a suitable diet is enforced, as some cases prove more or less manageable than we expect when we first see them. And yet, classify as we will, there is every possible gradation between the extremes.

I trust that a few illustrative cases will not trespass too much upon your patience. A patient under twenty is sure to be of the severest type, and is, with very rare exceptions, beyond hope; and yet, life may be prolonged even for ten years, as in a young man of exceptional resolution and force of character whom I saw several times. A rigid diet should be enforced as long as it can be tolerated and strength and weight are maintained.

I. Two years ago I saw a girl of ten. Polyuria and sugar had recently and inexplicably appeared. Under strict diet she became sugar free for a considerable time. She now, under the same diet, passes about fifty ounces of urine containing eight per cent. of sugar, looks and feels well and has held her weight.

II. A school girl of eighteen spent Christmas vacation at home and appeared to her mother as well as usual. She returned to boarding school and soon complained of extreme hunger and thirst, with increasing lassitude. Polyuria was also noted. She lost flesh rapidly, and was sent home January 27. She passed four quarts of urine in the twenty-four hours following her return, and the amount of sugar was 4.6 per cent. There were marked acetone and diacetic acid reactions. In spite of large doses of bicarbonate of soda, and without much change in diet, she went into coma, and died January 30, three days after her return from school. The whole process, as nearly as could be ascertained, was of a little less than a month's duration.

III. A man now thirty-eight, active, florid, muscular, weighing 206, consulted me seven years ago for marked polyuria and four per cent. of sugar. The polyuria was recent, but the sugar was probably of older date, as he had had eczema of the penis the previous summer. Under strict diet in two weeks the urine became normal. There was a slight loss of weight. He now weighs 175 to 180. He is in good general condition, in spite of extreme and unavoidable business worries and hard work for the past four or five years. He has relaxed, and again restricted his diet, sugar reappearing in the urine with less provocation than formerly. I doubt if he will attain old age, though I hope I may be mistaken.

IV. A woman of forty-one, weighing 185, entered the hospital in July, 1891, for sciatica. She had a moderate polyuria with about one per cent. of sugar, varying from day to day. Under treatment the sugar disappeared from the urine, and she was discharged much relieved after a month in the hospital. A brief record in 1897 states that she was looking well, sugar present. Two other records the same year show sugar in her urine in amounts varying from one per cent. to one and one-half per cent. She entered the hospital again in December, 1903, saying she had taken no special care of herself, except to avoid sweet stuffs. During her two weeks' stay in the hospital this time the urine varied between forty-two and seventy-two ounces, the largest amount of sugar being six per cent, the lowest, under strict diet, six-tenths of one per cent. She was discharged at her own request, the urine still containing sugar; no acetone or diacetic acid reaction at any time. Weight 175. In twelve years she seems to have lost no ground, and her case is probably to be classed as a favorable one.

V. Seven years ago a man, then sixty-three, of large business responsibilities, first consulted me. Ten months before that a competent observer had found no sugar in his urine. I found a moderate polyuria, and a percentage of sugar. Weight 184. He was easily rendered sugar free, and after a time could tolerate a moderate amount of starch. From time to time he broke loose, has gradually developed a marked arteriosclerosis, which last spring led, through rank imprudence, to a uremic attack. This has necessitated some change in his diet, and he has never fully regained the weight he lost last spring, now weighing 165, and passing about two per cent. of sugar without polyuria. He feels well and is in active work, having few mental resources outside of his business.

VI. Shortly after this his brother, one and a half years younger, came to me with great polyuria and much sugar, recent in onset. All symptoms disappeared rapidly under diet, and I have not seen him professionally for six years.

About that time he was elected to Congress, and has been since active in political and campaign work, feeling very well with moderate dietary restriction. These brothers are fair examples of diabetes coming on after middle life, in well-nourished though not obese persons—the milder type of the disease. It is usually not necessary to enforce an absolute diet in such cases long; moderate restriction can then be allowed. Some of these cases can later return to practically an ordinary diet without reappearance of sugar. The experiences of all of you can, doubtless, duplicate such cases as I have sketched.

In the young, treatment can at best only delay the fatal result. In those in the prime of life great service can generally be rendered, though actual cure occurs only in the minority of cases. In those past middle life the disease is usually well tolerated, and may be of comparatively little moment, provided that reasonable care be exercised; and yet, now and then we encounter cases the course of which proves other than first impressions would lead us to expect.

Editorial

> Mr. Tulliver, *loq.:* I picked her from her sisters o' purpose, 'cause she was a bit weak like; for I wasn't agoin to be told the rights of things by my own fireside. But you see when a man's got brains himself, there's no knowing what they'll run to; an' a pleasant sort o' soft woman may go on breedin' you stupid lads and 'cute wenches till its like as if the world was turned topsy turvy. It is an uncommon puzzlin' thing.
>
> *The Mill on the Floss* GEORGE ELIOT.

The Albany Guild for the Care of the Sick Poor

Among its many charities Albany presents none more effective nor energetic than the Guild for the Care of the Sick Poor, whose distinctive feature is the carrying of assistance to afflicted persons who are unable to seek it for themselves. The Guild provides and supports nurses duly certified by some well-known training school, who, acting under the immediate directions of the health physicians, care for the sick poor in their homes free of charge, where removal to hospitals is not possible. Besides the care of the sick, the Guild nurses are required to instruct the families they visit in the care of their own sick, the preparation of food, the laws of health, morals and wholesome living.

The report of the Guild for the year ending January 31, 1904, shows an increased demand upon its ministrations and a larger field of work. During the year 780 cases were attended, an increase of 155 over the preceding year. The number of visits made by nurses during the year was 10,945, of which 8,674 were visits with nursing treatment and 2,271 visits for supervision of convalescents. During the year $2,590.53 were collected for the use of the Guild.

The striking feature of this report lies in the progress made by the Special Obstetrical Department. Fifty-two patients, an average of one a week, were referred to this department, and these patients received 1,074 visits, including those of the obstetricians, nurses and medical students. Thirty-three medical students were in attendance.

This system of care of midwifery cases among the poor is thus carried on under the co-operation of the faculty of the Medical College with the Guild. Its success is another demonstration of the fact that medical teaching is not an injury but a benefit to the patient, and the presence of students at the lying-in has not been found objectionable. Furthermore the ministrations of the trained nurses are readily appreciated by the patient and the Guild for the Sick Poor is striking harder blows at the untrained septic midwife than generations of legislatures could accomplish without the aid of such effective instruments.

The Guild has secured a lodging for the accommodation of students when on special duty awaiting cases; a room has been secured with telephone service and a registry book provided. Opportunity is also given for the training of senior pupil nurses in training schools.

In order that the perfected organiaztion of the Guild for this work may be understood it should be stated that it is fully organized under the direction of a Head Obstetrician; a room is provided for case taking and preliminary examination; a nurse is always present and one of the obstetrical staff always attends and directs the management of the case.

The report includes a well-deserved tribute to the Head Obstetrician, Dr. H. Judson Lipes, who projected the Special Obstetrical Department.

The record of progress of the Special Obstetrical Department is of great significance, but the various interests of the

Guild are well represented and worthy the attention of all humane and charitable persons. This is a most effective charity and might well be imitated in all cities.

Public Health

Edited by Joseph D. Craig, M. D.

Department of Health—City of Albany, N. Y.

In common with most other municipalities, Albany has had an increase in the death rate for the month of February. Strange as it may appear, this increase is not due especially to an increased number of deaths from pneumonia and bronchial affections; there being a decrease of three from pneumonia deaths in comparison with the records of last year, and an increase of eleven due to bronchial affections. If you were to group the respiratory diseases together as probably due to atmospheric conditions there has been a net increase of only eight deaths. In the case of apoplexy there has been an increase in twelve deaths, and in the case of diabetes of three deaths; otherwise the increase in deaths has been distributed through the various classes of diseases as appears in the subjoined table:

Increase	
Diphtheria	1
Grippe	2
Erysipelas	2
Dysentery	1
Syphilis	1
Cancer	4
Diabetes	3
Cerebro-Spinal Meningitis	2
Other Nervous Diseases	1
Apoplexy	12
Diseases of the Spinal Cord	2
Softening of the Brain	1
Pericarditis	2
Endocarditis	2
Organic Disease of the Heart	1
Atheroma	2
Hemorrhage	2
Disease of the Larynx	2
Disease of Thyroid Body	1
Bronchitis, Acute	3
Bronchitis, Chronic	2
Broncho-Pneumonia	5
Pleurisy	1
Congestion of Lungs	1
Diseases of Early Infancy	1
Senile Debility	2
Accidental Traumatisms	1
Acute Poisonings	1
Total	61

Decrease	
Typhoid Fever	2
Scarlet Fever	1
Whooping-cough	3
Septicæmia	2
Tuberculosis	1
Rheumatism, Acute	1
Convulsions, Children	2
Locomotor Ataxia	1
Paralysis	1
Thrombosis	1
Pneumonia	3
Emphysema	1
Cirrhosis of Liver	2
Peritonitis	2
Hernia and Intestinal Obstruction	2
Bright's Disease, Chronic	1
Bright's Disease, Acute	1
Accidents of Pregnancy	1
Congenital Debility	1
Suicide, Fire Arms	1
Fractures	1
Noxious Gases	1
Ill Defined Causes	1
Alcoholism	1
Other External Violence	1
Total	35

In regard to contagious disease there is still a most creditable showing for this city: a total of forty-eight cases reported as against ninety-two last year and fifty-three the year before and 104 during the year 1901.

It is pleasing to note that in the sixteen cases of diphtheria reported to the Department antitoxin has been used in every case.

ABSTRACT OF VITAL STATISTICS, FEBRUARY, 1904

Deaths

	1901	1902	1903	1904
Consumption	14	16	15	14
Typhoid Fever	3	3	3	1
Scarlet Fever	0	0	2	1
Diphtheria	4	2	0	1
Measles	0	0	0	0
Grippe	14	2	2	4
Whooping-cough	0	0	4	1
Pneumonia	21	14	25	22
Broncho-pneumonia	5	6	3	8
Cancer	7	8	2	6
Apoplexy	10	11	5	17
Bright's Disease	13	11	17	15
Accidents and Violence	7	6	10	7
Seventy years and over	24	26	30	31
One year and under	29	12	21	17
Total deaths	157	148	156	182
Death rate	19.75	18.62	10.62	22.89

Death rate less non-residents 22.01.

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	10	12	10	15
Albany Orphan Asylum	0	1	0	1
Child's Hospital	2	0	0	0
County House	3	4	8	3
Home for Aged Men	0	0	1	4
Homeopathic Hospital	1	4	1	1
Hospital for Incurables	1	1	0	1
House of Good Shepard	0	2	0	0
Little Sisters of the Poor	1	1	1	0
Penitentiary	2	0	2	0
Public Places	2	2	0	0
St. Francis de Sales Orphan Asylum	0	0	0	1
St. Margaret's House	0	3	0	4
St. Peter's Hospital	5	6	2	5

Marriages		41
Births		113
At term	107	
Still births	5	
Premature births	1	

WORK OF HEALTH PHYSICIANS

Total number of calls made during the month	416
Total number of assignments	96

INSPECTIONS

In the Bureau of Markets and Milk there were seventy-five inspections made, of which forty-three were of markets, three of slaughter houses, four of hide houses, five of commission houses and twenty of public markets. There were thirty-three milk samples taken and sixty-six tests made of which sixty-four were found to be above the standard, and two below the standard.

In the Bureau of Plumbing, Drainage and Ventilation, there were ninety-five inspections made, of which forty-four were of old buildings and fifty-one of new buildings. There were eight iron drains laid inspected, two urinals, two cesspools, twelve wash basins, seventeen sinks, thirteen bath tubs, twelve wash trays, twenty-five tank closets. Eighty-one permits were issued, of which seventy-one were for plumbing work and ten for building purposes. Six plans were submitted to the department for approval, of which three were of old buildings and three of new buildings. Three houses were tested on complaint; one with blue, red test and two with peppermint test. Three water tests were made. Eight houses were examined on complaint, thirty-nine re-inspections were made, fifteen complaints were found valid and thirteen were found to have been made without cause.

In the Bureau of Sanitation, there were thirty-six complaints made, of which one was of a privy, nine of closets, seven of plumbing, five of water, one of filthy alleys, one of filthy vacant lots, three of filthy premises, six of gas and one of garbage. There were forty-three inspections made and seven re-inspections. Eighteen complaints were found to have been made without cause; four nuisances were found to have been abated on re-inspection; twelve notices were served; two hearings were held before the Commissioner of Public Safety and two cases were brought to a hearing.

CONTAGIOUS DISEASE

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	7	3	10	5
Scarlet Fever	4	9	10	12
Diphtheria and Croup	75	27	14	16
Chickenpox	0	6	49	5
Measles	3	8	3	7
Whooping-cough	15	0	3	0
Consumption	0	0	3	3
Total	104	53	92	48

Fumigations:
Houses.................. 16 Rooms.................. 40
Number of days quarantine for scarlet fever:
Longest...... 34 Shortest...... 18 Average...... 27 2-3
Number of days quarantine for diphtheria:
Longest...... 23 Shortest...... 9 Average...... 15¾

ANTITOXIN

Cases of diphtheria reported	16
Cases in which antitoxin was used	16
Deaths after use of antitoxin	1

DEATHS FROM DIPHTHERIA

The one death from diphtheria was a female, sick twenty-four hours, antitoxin was used twelve hours before death, died of membraneous croup.

BENDER LABORATORY REPORT

Diphtheria

Initial positive	Initial negative	Release positive	Release negative
71	65	7	9

Total.................... 98

Tuberculosis

Initial positive	Initial negative
3	1

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Society was held at the Albany Medical College on Wednesday, March 10, 1904. The meeting was called to order by the President, Dr. C. S. Merrill, at 8:40 P. M. Besides the members of the Junior and Senior classes who were especially invited to hear Dr. George Henry Fox, of New York, there were present the following members of the Society: Drs. Bartlett, Bingham, Cary, Classen, Curtis, George, Laird, Lilienthal, Lomax, MacFarlane, Merrill, Morrow, Ryan, Shanks, Shaw, Stillman, Sweet, Traver, Vander Veer, E., Van Slyke, Wansboro and Winne.

The PRESIDENT announced that the regular business of the meeting would be dispensed with and that he took great pleasure in introducing Dr. George Henry Fox, Professor of Diseases of the Skin in the College of Physicians and Surgeons, New York, who would give an illustrated lecture on Syphilis.

At the close of Dr. Fox's lecture, Dr. Curtis moved that the Society tender Dr. Fox a vote of thanks for his very interesting and able lecture. It was a lecture, he said, that all present could listen to with profit and instruction and that it was of especial interest to the students, as syphilis is a rare disease in Albany. The vote of thanks was seconded and unanimously carried. On motion the meeting was adjourned.

At the close of the meeting Dr. Merrill invited all present to attend an informal smoker in the College Library in order to personally meet and become acquainted with Dr. Fox.

H. L. K. SHAW, *Secretary.*

C. S. MERRILL, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

The Albany Guild for the Care of the Sick Poor.—Statistics for February, 1904.—Number of new cases, 82. *Classification of cases:* dispensary patients receiving home treatment, 2; district cases reported by health physicians, 6; charity cases reported by other physicians, 49; patients of limited means, 25; old cases still under treatment, 26; total number of patients under nursing care, 108. *Classification of diseases* (new cases): medical, 25; surgical, 6; obstetrical, mothers, 26; infants, 21; dental, 2; eye and ear, 1; throat and nose, 1; transferred to hospital, 5; deaths, 6.

Special Obstetrical Department: All cases under care of two attending obstetricians. Medical students in attendance, 6; guild nurses, 4; cases, 6. Number of visits by head obstetrician, 3; by attending obstetricians, 27; by medical students, 21; by guild nurses, 72; total number of visits for this department, 123.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, 766; for professional supervision of convalescents, 215; total for the month, 981. Cases were reported by three health physicians, by twenty-six other physicians, and one dentist.

Annual Report of the Albany Guild for the Care of the Sick Poor.—Number of cases attended, 780; old cases under treatment, February 1, 1903, 30. New cases: dispensary patients with home treatment, 15; district cases reported by health physicians, 76; charity cases reported by other physicians, 340; patients of limited means, 319. Total number of new cases, 750. Number of patients transferred to hospitals, 33; number of deaths, 39.

Special Obstetrical Department. Number of physicians in charge of cases, 6; number of medical students in attendance, 33; number of patients referred to this department, 52. All cases under care of guild nurses. Number of visits by consulting obstetrician, 10; number of visits by head obstetrician, 118; number of visits by attending obstetricians, 60; number of visits by medical students, 339; number of visits by Guild nurses, 547. Total number of visits for this department, 1074. *Visits of Guild nurses* (all departments): Number of visits with nursing treatment, 8674; for professional supervision of convalescents, 2271; total number of visits for the year, 10,945. Cases were reported to the Guild by the city physician, by all of the health physicians, and by eighty-two other physicians. Dentists, six.

Aid Society for Albany Hospital.—A society has been organized in the town of Coeymans, N. Y., for the purpose of aiding in the work of the Albany Hospital, which institution is seldom without a Coeymans patient. The people of the town of Coeymans are enthusiastic supporters of the Albany Hospital, and members of the Aid Society, in that town, have invited the co-operation of their townspeople in their efforts to assist in supplying comforts for the sick. The articles required, and so supplied, will be used in all of the rooms, as well as the wards, as needed. Contributions will be sent to the hospital once a year, on April 5th. At a recent meeting of the society, regular officers were elected, and a brief constitution and by-laws adopted. The meeting was a representative one and considerable enthusiasm was evident.

UNION UNIVERSITY ALUMNI ASSOCIATION.—This association held its annual meeting and dinner at the Hotel Kenmore, Albany, N. Y., Thursday evening, March 10th, at 7:30 o'clock. After the business meeting a very pleasant dinner was enjoyed by those present, which was greatly added to by an attractive toast list.

ALUMNI DAY, 1904.—A meeting of the executive committee of the Alumni Association of the Albany Medical College was held on February 27, 1904, when arrangements for the annual meeting on May 3rd were discussed. It was voted to have the annual dinner in the evening. The President, Dr. Joseph D. Craig, appointed the following named committees: On Dinner and Speakers, Drs. Tucker, Barker, E. A. Vander Veer, Nellis and MacFarlane; On Reception of Members, Drs. Traver, Reilly, Neuman, Shaw, Wiltse, Wilson, Lochner, Theisen and Rooney.

CLASS OF '05 BANQUET.—Forty members of class of '05 of the Albany Medical College sat down to a dinner at the Globe Hotel on the evening of February 26th. The dinner was a most enjoyable one, and for the first time in several years passed off without any incident to mar its pleasure. After the menu had been served, Toastmaster G. W. Papen called for the following toasts: "The Jolly Juniors, 1905," O. F. Larsen, president of the class; "A Shotgun Prescription," P. J. Donahue; "The Grafters," M. J. Keough; "Advice to Young Hunters," C. W. Stratton; "Let Me Have My Dream Out," W. J. Garvey. Officers of the class are: President, O. F. Larson; vice-president, T. J. Flynn; secretary, L. R. Hurlburt; treasurer, H. A. Bushnell; historian, G. W. Papen; marshall, G. D. Walrath; executive committee, K. D. Blackfan, T. A. Hall, C. A. Hemstreet, C. L. Hacker and H. A. Bushnell.

LEPROSY INVESTIGATION.—A number of prominent physicians, men who have had many years of experience with infectious diseases, are about to undertake an exhaustive investigation of leprosy. Surgeon-General Wyman, of the United States Marine Hospital Service, has invited Dr. Charles P. Cooper, of the Board of Health of Hawaii, to act as chairman of this committee. The committee also includes Dr. J. F. Smith, secretary of the Superior Board of Health, of San Juan, Porto Rico, and Dr. J. C. Nolte, of the State Board of Health of Louisiana. Dr. Cooper is a native of New York, but for the last eighteen years has resided in Hawaii, where he has served as president of the board of health for a year and a half.

PHARMACY NOW A COLUMBIA COURSE.—At a meeting of the trustees of Columbia University, held March 7th, final arrangements were made for the incorporation of the College of Pharmacy of the City of New York and Columbia University. The College of Pharmacy, founded in 1831, numbers among its graduates leading pharmacists all over the country. By the terms of the agreement President Butler of Columbia becomes president of the College of Pharmacy and the dean of the College of Pharmacy will have a chair in the Columbia University faculty. The educational management of the College of Pharmacy will be under the direction of the University council, but as a corporation it will remain separate and be administered by its own board of trustees.

HARTFORD MEDICAL RECEPTIONS.—Dr. Thomas D. Crothers, A. M. C., 1865, tendered the City and County Medical Societies of Hartford, Conn., his second annual medical reception in the parlors of the Walnut Lodge Hospital, February 25th last. During the evening Prof. Heinrich Stern, of the New York School of Clinical Medicine, gave a very interesting lecture on the "Clinical Importance of Acraphagia." A reception and luncheon followed the clinical portion of the evening and a pleasant evening was passed by all.

A NEW MEDICO-CHIRURGICAL HOSPITAL.—On February 23rd the new Medico-Chirurgical Hospital of Philadelphia, which has been lately remodelled and reconstructed, was formally opened in the presence of a large audience in the Clinical Amphitheatre. The presentation address on behalf of the building committee was made by ex-Mayor Warwick, the acceptance address being made by Judge Butler, Chairman of the Board of Trustees. The reconstruction of this hospital was rendered necessary by reason of its having been badly damaged by the explosion of a hot water generator.

AMERICAN TUBERCULOSIS CONGRESSES.—The confusion arising from the several tuberculosis congresses and conventions which have been arranged for during the last few months resulted in a meeting being held in Baltimore, Md., in January last, by the leading hygienists of the country. After a long discussion it was decided that a committee should be appointed with full power to act regarding the tuberculosis congress question in America and the representation of the American medical profession at the International Congress at Paris in 1905. Dr. Osler was made chairman of this committee which will be called together for further action in the near future.

PERSONAL.—Prof. ALBERT VANDER VEER recently met with a painful accident, by slipping on an icy sidewalk and falling, fracturing his right wrist. Dr. Macdonald attended him and the doctor is making a good recovery.

—Dr. MARTIN S. REID (A. M. C. '03), of Coeymans, N. Y., has recently been appointed health officer for his locality by the State Board of Health.

—Dr. JOSEPH A. LANAHAN (A. M. C., '99), has been appointed to the staff of physicians in Dannemora State Hospital. Dr. Lanahan entered upon his duties a few weeks ago.

—Dr. EDWARD L. HANES (A. M. C., '99), formerly of the Hudson River State Hospital at Poughkeepsie, N. Y., has been promoted to the position of assistant physician at the Rochester State Hospital, Rochester, N. Y.

—Dr. ISAAC E. VAN HOESEN (A. M. C. '03), has severed his connection with the resident staff of the Albany Hospital, where he has been since his graduation, to take advantage of an opportunity for practice offered at his home in Coxsackie, N. Y.

—Dr. GEORGE W. E. GOODELL (A. M. C. '94), is at Bridgeport, Madison County, N. Y.

DEATHS.—Dr. J. J. KEMPE (A. M. C. '68), died at his winter home in Pinellas, Fla., about March 12, 1904, of heart disease, aged 61 years.

—Dr. E. E. MARYOTT (A. M. C. '82), died at his home in Coxsackie, N. Y., February 28, 1904, aged 50 years. His death was the result of a fall on an icy sidewalk, striking his head.

—Dr. THEODORE Y. KINNE (A. M. C. '62), passed away March 6, 1904, at his home in Patterson, N. J., aged 65 years.

—Dr. LEANDER SWARTOUT (A. M. C. '80), died at his home in Prospect, N. Y., March 10, 1904, aged 64 years.

—Dr. WILLIAM F. HOLCOMBE (A. M. C. '50), died at the Presbyterian Hospital, New York City, March 17, 1904, aged 77 years.

IN MEMORIAM

RIAL STRICKLAND, M. D.

The old country doctor is fast disappearing. The bustling, resolute, independent doctor who was a surgeon and obstetrician, a neurologist, a chemist, a dentist, a veterinarian, and an undertaker on occasions, and who wrote wills, said prayers, and conducted funeral services, and did many other things unknown to the modern physician, belongs to the past century. Dr. Strickland was a marked type of this class. In the sixty-four years of his professional career he filled this rôle completely, and officiated in every possible way that a physician of long ago was called on for help.

Born in 1814 in Stafford Springs, Conn., his early boyhood was spent on the farm, and after the usual common school studies he entered Wilbraham Academy, and from there went to a similar institution in Pittsfield, Mass., where he completed his academic studies. In 1834 he began the study of medicine by reading in a doctor's office, and in 1839 he graduated from the Albany Medical College. Returning to Connecticut, he began to practice in Columbia, then removed to Long Meadow, Mass. Twenty years later he moved over the line to Enfield, Conn., and continued here until his death. Thus for over sixty years his practice was confined to a radius of a few miles in the valley of the Connecticut River. In 1854 he was sent to the Massachusetts legislature as a representative from his town, and in 1881 he was elected State senator to the Connecticut legislature. To the latter office he was elected three times. Although representing a minority party his popularity and ability were so great that all party lines were forgotten, and his majority was always very large.

As a legislator he proved to be a very careful, reliable man, and could have gone on farther had he manifested any ambition to do so. These honors were accepted as subordinate, and did not detract him from his regular professional work. Later he was appointed United States Examining Pension Surgeon, which office he held for many years. As a practitioner Dr. Strickland was a man of self-reliance with an independent, quiet, painstaking manner, reaching conclusions slowly, and seldom changing his opinion, except for a good reason. In the opinion of his contemporaries he was a man of very excellent judgment in medical matters, and safe and careful in his practice. It is needless to say that he was highly respected in his community, and his judgment and services were sought on many occasions outside the realms of medicine. He was an active member of the church and foremost in every good work for the benefit of the community in which he lived. Dr. Strickland entertained a very warm feeling for the Albany Medical College and its graduates were always welcome and found in him a good friend. Had it been in his power he would have endowed his Alma Mater very liberally. His relations to the profession were very cordial, and never antagonized any one, but when differeng he was always frank and generous. He did not go away from home, except to the neighboring medical society, but was a great reader and kept in close touch with all the movements of the day. It was his rare privilege to have patients extending over three generations, and see at least two generations of physicians come and go in his neighborhood.

The New England Alumni of the Albany Medical College at their fall meeting in 1903 at Springfield, Mass., passed the following preamble and resolutions: "Whereas Dr. Rial Strickland, of Enfield, Conn., is one of the oldest graduates of the College, and has been for over sixty years most prominently identified with the profession and the best interests of the community, occupying the position as State representative in Massachusetts, and that of State senator for three terms to the legislation of Connecticut, and has been regarded by his medical associates as a most judicious, careful physician, therefore, be it resolved that we hereby make Dr. Rial Strickland an honorary member of our association, and consider it a great honor to have among us one of the oldest graduates of the Albany Medical College, and one among the oldest physicians of this country, and also that we send him our warmest greetings, with confident hope that when the sun of his life shall sink below the horizon of time it will be but to rise in another sphere of greater joy and activity, also that a copy of these resolutions be sent to him, and placed on our records for publication."

These resolutions were received a short time before his death and gave him great pleasure. Dr. Strickland continued to practice up to a few months before his death. His general debility was greatly increased by the shock and excitement following a fire which destroyed his old office and many of his books and papers. He never fairly recovered from this, although he was able to walk about up to within a few days of his death, which occurred December 5, 1903, from general exhaustion and paralysis in his 89th year. No eulogy or history can adequately portray the life of one who has practiced medicine and been identified with the families of so many persons, extending over three generations. His personal influence and presence in all times from the cradle to the grave can never be known, but the warm respect in which he was held gives some idea of the power he exercised in this community.

Dr. Strickland's family relations were particularly pleasant. In 1840 he married Miss Sarah Luther, who died in 1849, leaving two children, one of which survived her. In 1850 he married Miss Hamilton, the daughter of the late Dr. H. A. Hamilton, who survives him with two daughters, all of whom are happily married, with large families. His funeral was the occasion for the gathering of a large concourse of friends from all over the country. Several clergymen who had known him in their infancy and childhood, officiated and spoke feelingly of his life and influence. His name and deeds will not require a tombstone, but will be remembered for a long time in the valley of the Connecticut.

T. D. Crothers.

William Frederic Holcombe, M. D.

Dr. William Frederic Holcombe died March 16, 1904, in the Presbyterian Hospital, New York City, where he had been ill for several days. Since 1861 he had been identified with the medical profession in New York City, and he was connected with many of the leading medical societies of the country. For the last ten years he had not actively practiced his profession, but treated a few of his older patients. During his active days he was the physician of Charles Sumner and of Daniel Webster, and he was called in consultation over General Grant in his last illness.

Dr. Holcombe was seventy-seven years old. His birthplace was Sterling, Mass., where his family was one of the oldest. His father was Augustine Holcombe, and his mother Lucy Bush. His early education was received at the Williston Seminary, at Easthampton, Mass., whence he went to the Albany Medical College and was graduated with the class of 1850. He then went to Europe, where he studied in special courses of medicine at the universities of Paris and Prague.

On his return from Europe Dr. Holcombe joined the faculty of the New York University Medical College and lectured to the students on diseases of the ear. The next year, in 1862, he became Professor of Diseases of the Eye and Ear at the New York Medical College, and a year later he entered the Ophthalmic College and Hospital as one of the staff of surgeons. He was also connected with the New York Medical College for Women. Dr. Holcombe was instrumental in the founding of the New York Genealogical and Biographical Society in 1869.

Dr. Holcombe has been a widower for fifteen years. His wife was Margaret Wanzer. He had no children.

Although Dr. Holcombe was an expert on diseases of the ear, he was himself deaf. This condition was one of the reasons for his giving up his practice when he did. For several years he was engaged in preparing the genealogical index of the Bush family, and at the time of his death he had carried it up to 1888.

Theodore Y. Kinne, M. D.

Dr. Theodore Y. Kinne, one of the best known homœopathic physicians in the county, died at his home in Paterson, N. J., March 6, 1904, aged 65 years. Dr. Kinne was the eldest son of the late Elbridge Kinne and Sophronia Young, of the town of Dewitt. His early education was received in the district school and the Syracuse High School, where he was a member of the first class ever leaving that institution. After obtaining his professional education at the medical schools of Castleton, Vt., and Albany, N. Y., from which latter institution he graduated in 1862. He engaged in practice with the late Dr. Lyman Clary, of Syracuse, from 1863 to 1865, when he entered the United States army as assistant surgeon of the 184th New York Volunteers, serving with that regiment until the close of the war, also with a regiment stationed in Texas to subdue the border disturbances. In 1866 he located in Paterson, N. J., where he has continuously resided since and built up a large professional clientage. He was always active in medical and religious circles, holding many positions of trust and honor in church and professional bodies, enjoying the highest esteem and confidence of his associates. In 1861 he was united in marriage with Ella, daughter of the late Garton Nottingham, sister of Jacob Nottingham. Besides his wife there are surviving two daughters, Mrs. Thomas E. Graham and Miss Ella Louise Kinne, of Paterson. Of his parental family there remain Mrs. W. H. Peck, of Dewitt, Mrs. Lizzie M. Barker and Dr. E. O. Kinne, of Syracuse.

Leander Swartout, M. D.

Dr. Leander Swartout died at his home in Prospect, N. Y., on March 10th. He received his early education in Fairfield Seminary, from which institution he graduated in 1861. In '62 he enlisted in Company C, One Hundred and Twenty-first New York Volunteers and served until the close of the war. After his discharge from the army Dr. Swartout taught school until 1877, when he entered the study of medicine, graduating from the Albany Medical College in 1880, since which time he practiced his profession in Prospect, N. Y. While his interest in the social and municipal affairs of his town was always keen, his loyalty to his profession was uppermost. He has served as president of the county society. In politics he was a Republican and served one term as coroner. He is survived by a wife and seven children.

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Gerrish, Frederick Henry. A text-book of anatomy by American authors. 2d ed., rev. and enl. Phil., 1902.

Sobotta, Johannes. Atlas and epitome of human histology and microscopic anatomy. Ed., with extensive additions, by G. Carl Huber. Authorized translation from the German. Phil., 1903. (Saunders' medical hand-atlases.)

Stöhr, Philip. Text-book of histology, including the microscopic technic by Dr. Philip Stöhr. 5th American from the 10th German ed., tr. by Dr. Emma L. Bilstein; ed., with additions, by Dr. Alfred Schaper. Phil., 1903.

PHYSIOLOGY

Kirkes, William Senhouse. Kirkes' handbook of physiology. Handbook of physiology, revised by William H. Rockwell, Jr., M. D., and Charles L. Dana. 17th American ed. N. Y., 1903.

Hammarsten, Olof. A text-book of physiological chemistry. Authorized translation from the author's enl. and rev. 4th German ed., by J. A. Mandel. 3d ed. N. Y., 1902.

Simon, Charles E. A text-book of physiological chemistry for students of medicine and physicians. Phil., 1901.

PERSONAL HYGIENE

Cornaro, Luigi. Art of living long; a new and improved English version of the treatise of the celebrated Venetian centenarian, Louis Cornaro, with essays by Joseph Addison, Lord Bacon and Sir William Temple. Milwaukee, 1903.

Bancroft, Jessie H. School gymnastics, free hand. Rev. ed. A graded course of physical exercises for schools. Boston, 1903.

Hancock, H. Irving. Japanese physical training, the system of exercise, diet and general mode of living that has made the Mikado's people the healthiest, strongest and happiest men and women in the world. N. Y., 1903.

Nissen, Hartvig. Rational home gymnastics for the "well" and the "sick," with health-points on walking and bicycling, and the use of water and massage. With illustrations of exercises for women contributed by Baroness Rose Posse. Rev. and enl. ed. Boston, 1903.

PUBLIC HEALTH

Frankland, Mrs. Grace C. Bacteria in daily life. Lond., 1903.

Sternberg, George M. Infection and immunity, with special reference to the prevention of infectious diseases. N. Y., 1903.

MATERIA MEDICA AND THERAPEUTICS

Potter, Samuel O. L. A handbook of materia medica, pharmacy and therapeutics, including the physiological action of drugs, the special therapeutics of disease, official and practical pharmacy, and minute directions for prescription writing. 9th ed., rev. and enl. Phil., 1903.

Pictet, Amé. Die pflanzenalkaloïde and ihre chemische konstitution; in deutsche bearbeitung von Richard Wolffenstein. Ed. 2 enl. Berlin, 1900.

Patton, Joseph M. Anæsthesia and anæsthetics, general and local, for practitioners and students of medicine and dentistry. Chicago, 1903.

Baruch, Simon. The principles and practice of hydrotherapy; a guide to the application of water in disease, for students and practitioners of medicine. Ed. 2. N. Y., 1903.

To be continued

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ALBANY MEDICAL ANNALS

Original Communications

EXPERIMENTAL PANCREATITIS CONSIDERED IN ITS RELATION TO THE ACUTE FORMS OF PANCREATITIS IN MAN.

Presented before the Medical Society of the Greater City of New York, February 8, 1904, in a discussion of "Diseases of the Pancreas."

BY RICHARD M. PEARCE, M. D.,
Director of the Bender Laboratory, Albany, N. Y.

The short space of time allotted me in this discussion will not allow a comprehensive statement of the many fruitful experimental researches having for their object the elucidation of the physiology and pathology of the pancreas. Various phases of the experimental investigations will, doubtless, be taken up by others who address you this evening; and I have therefore, with the approval of your president, decided to limit my remarks to a consideration of the acute lesions which may be produced experimentally. What we have gained by experiment in this field is practically a knowledge of etiology, and it is therefore more particularly the question of etiology that I will discuss. I will not hesitate moreover to compare the experimental lesions with the acute lesions seen in man, with the object as far as possible of correlating the knowledge gained by experiment and that gained by pathological study.

In any consideration* of the acute forms of pancreatitis we are confronted at the outset with the question of classification. The division into hæmorrhagic, suppurative and gangrenous forms as made by Fitz would appear to satisfy all demands. Some writers, however, speak of a necrotic form. This is of doubtful value, for all forms show more or less necrosis; indeed, in the hæmorrhagic form, especially that produced experimentally, necrosis is a constant and essential part of the process, though not always evident macroscopically. The possibility of pancreatic hæmorrhage without inflammation—the so-called pancreatic apoplexy—is another debatable question which, in the present state of our knowledge cannot be definitely settled. It seems probable from our present point of view, that thorough histological examinations of such cases would furnish evidence of inflammatory changes and bring this lesion under the head of hæmorrhagic pancreatitis. Seitz, the last writer (1892) to make a careful study of this lesion is, however, opposed to this view and believes that some cases, at least, may be attributed to arterio-sclerosis.

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* In the preparation of this brief summary I have freely used the recently published work of Opie (Diseases of the Pancreas, Its Cause and Nature, J. B. Lippincott Co., 1903) and Flexner's description of the pathological anatomy of the pancreas (Transactions of the Congress of American Physicians and Surgeons, 1903, vi, 18); and I take this opportunity to acknowledge my indebtedness. I have not attached a bibliography. All references may be found in the bibliography of Opie's work.

Hæmorrhagic Pancreatitis.—The gross appearance of this form of pancreatitis—an enlarged organ with diffuse or mottled hæmorrhagic areas of varying color and greyish-white spots or streaks of fat necrosis—is so well known that we may turn at once to the question of etiology. Our knowledge of the causes of pancreatitis is entirely the result of experiments having for their object the reproduction of the condition. Clinical observations have contributed nothing, and with the exception of Opie's observations upon the relation of cholelithiasis, the same may be said of general pathological examinations. The simplest form of experimentation is the injection into the pancreatic duct of various irritating or supposedly injurious substances. A great variety of substances thus introduced have been found to produce typical hæmorrhagic pancreatitis, usually with fat necrosis. These substances are deliquescent zinc chloride (Thiroloix), artificial gastric juice (Hlava, Flexner and Pearce) bile (Opie, Flexner and Pearce), papaine (Carnot), and bacteria and their toxins (Hlava, Carnot, Flexner). Various other substances as formalin, nitric and chromic acids, and solution of caustic alkalies, Flexner found would produce the same results. The disease produced by these various agents usually runs a rapidly fatal course, though some animals may live for weeks and present at death extensive suppurative or sclerotic changes. In some instances putrefactive micro-organisms invade the injured organ and cause a gangrenous pancreatitis. If we study these various methods with the view of determining if any of them may operate to cause the hæmorrhagic pancreatitis seen in man, we have four possibilities: action of (*a*) ferments originating in the pancreas, (*b*) bacteria, (*c*) gastric juice, and (*d*) bile.

The possibility of the first is suggested by Carnot's experiments with papaine, and some support is offered by Chiari's observations upon autodigestion of the pancreas. According to Chiari this change occurs shortly before death and may be accompanied by multiple small hæmorrhages. The destruction of the parenchyma thus brought about affords an opportunity for the diffusion of the pancreatic ferments. There is some evidence that fat necrosis may be caused by the fat splitting ferment thus liberated, but as yet we have no definite proof that a true hæmorrhagic pancreatitis may result from the action of this or other ferments liberated at the same time.

Various micro-organisms, as the bacillus coli, the pneumococcus and the pyogenic cocci have been found, not infrequently, associated with hæmorrhagic pancreatitis. There has been no uniformity in these findings and most of the writers reporting the results of bacteriological examinations agree that the organisms represent a secondary invasion of injured tissue and are in no way concerned in the etiology of the lesion.

That the gastric juice, as suggested by Hlava may enter the pancreatic duct and produce an inflammation of the pancreas presupposes a powerful anti-peristaltic, or other action, forcing the secretion into the duct. Of such action we have no definite evidence. Under normal conditions it is practically impossible to force fluids from the intestine into either bile or pancreatic ducts. I have recently made some experiments upon dogs in order to determine this point. The intestine was ligated at varying distances above and below the orifice of the ducts and distended by injecting colored solutions and suspensions. After varying periods of time, the animals were killed, but no staining of the ducts could be demonstrated. In other experiments upon the dead animal, forcible manual pressure was exerted upon the similarly ligated intestine with negative results. On the other hand it cannot be denied that under certain pathological conditions of the duct orifice, intestinal fluids may possibly be forced into the duct. Concerning the negative action of the natural gastric juice upon pancreas parenchyma the following case would appear conclusive:

(*Records of the Pathological Department of the University of Pennsylvania; Autopsy No. 0.148.*) The clinical history of this case is brief and incomplete. The patient, a negro, aged forty-one, was admitted to the Insane Department of the Philadelphia Hospital on July 19, 1900, with a diagnosis of delusional insanity. For the next six months his condition, apparently, was not noteworthy. "On January 28, 1901, patient seemed to be rather dull and was put to bed." On February 11th, regurgitation of blood mixed with milk curds was observed. This continued until his death, on February 13th. Physical examinations revealed a rather firm mass in right hypochondriac region, which, upon palpation caused patient to complain of pain. At no other time did he complain of pain. Temperature normal, pulse about 100 and of poor volume; no distention of abdomen; marked constipation. Albumen was found in the urine; and microscopically, numerous hyalin and granular casts. The clinical diagnosis was cancer of the stomach and the liver with chronic nephritis.

Autopsy—Pathological diagnosis: Recent hæmorrhage in and about pancreas and duodenum, chronic gastro-pancreatic fistula; chronic interstitial pancreatitis; chronic pulmonary tuberculosis; tubercolosis of bronchial, gastro-hepatic and retro-peritoneal lymph nodes; chronic mitral endocarditis; general chronic passive congestion; chronic diffuse nephritis (parenchymatous type).

Abdominal cavity: Stomach greatly dilated, the lower margin extending below the umbilicus; pylorus touching right costal margin. Beneath the pylorus and entirely surrounding the duodenum is a globular, firm, hæmorrhagic mass, distinctly encapsulated and resting on the upper end of the right kidney. The subperitoneal tissues between the stomach and the transverse colon and in the neighborhood of pylorus and adjacent abdominal wall are infiltrated with clotted blood. Stomach, pancreas, duodenum and transverse colon with hæmorrhagic mass removed entire. Upon opening the stomach it is found to be normal except for the presence of a small orifice with smooth edges four centimeters from the œsophageal end. The outer wall of the stomach about orifice is bound to the pancreas nine centimeters from its splenic end by dense fibrous adhesions. A probe passed through the orifice in the stomach enters a sinus leading to the pancreas. This sinus passes directly through the pancreatic tissue. Its walls are lined by dense fibrous tissue, and it contains blood-stained mucus-like fluid. The canal can be followed for a distance of five centimeters. It then approaches the surface of the pancreas where it is continuous with the blood clot about the duodenum. No foreign body is found in the sinus. The splenic end of the pancreas for a distance of eight centimeters appears normal; the middle portion for a distance of four and a half centimeters is paler and firmer than normal, and the lobulations are not so distinct; through the remaining five centimeters constituting the duodenal end, the pancreas is extensively infiltrated with blood. Surrounding the duodenal end of the pancreas and completely encircling the duodenum is an encapsulated mass of black clotted blood fourteen centimeters in length and seven centimeters in diameter. The long diameter of this clot corresponds to the course of the duodenum. The source of the hæmorrhage cannot be discovered. The pancreatic and common bile ducts are patulous. The mucous membrane of the duodenum is very thin, blood-stained, and at one point presents a small adherent blood clot two centimeters in diameter. No fat necrosis.

Histological examination: The wall of sinus is composed of dense fibrous tissue. On its surface is a thin layer of granular material with a few pus cells. Sections stained by the Gram-Weigert method show a few cocci and bacilli. Scattered through superficial portion of sinus wall are many lymphoid and plasma cells and a few polymorphonuclear leucocytes. New blood vessels are seen throughout, and here and there are small areas of hæmorrhage. In the deeper portions the hæmorrhage is more diffuse, and here are seen small islands of atrophic pancreatic tissue infiltrated by lymphoid cells. From the sinus wall coarse bands of fibrous tissue run into the substance of the pancreas, and divide into finer lines which penetrate the pancreatic acini. Sections from various portions of the pancreas, at a distance from the sinus, show a moderate increase of perilobular connective tissue. The cells of the parenchyma are very granular and stain poorly. The islands of Langerhans are prominent and unaltered. Throughout the duodenal portion extensive hæmorrhage is seen in the interstitial tissue, penetrating in places the parenchyma which is œdematous. No necrosis or exudation is evident. The splenic portion is free from hæmorrhage.

From this description it is evident that in the early development of the sinus the gastric juice must have been in intimate contact with the pancreas parenchyma but failed to produce a hæmorrhagic pancreatitis. The hæmorrhage into the duodenal portion, was unaccompanied by acute changes and was due apparently to extension from the large clot about duodenum. The chronic pancreatitis was merely a localized process about the sinus. The case offers strong evidence against the possibility of gastric juice exciting a typical hæmorrhagic pancreatitis.

The relation of bile to acute pancreatitis has received very substantial support from experimental observations and also from the not unusual occurrence of the lesion with cholelithiasis. The most important contributions to this phase of the subject have been made by Opie, who has worked out the pathogenesis of pancreatitis associated with gall-stones and by injecting bile into the pancreatic duct of the dog has produced a typical inflammation of the gland with associated fat necrosis. In one particularly fortunate autopsy he found at the apex of the diverticulum of Vater a small calculus completely blocking the duodenal orifice but too small to obstruct the orifices of the common bile and the pancreatic duct. These ducts were thus transformed into a continuous closed channel from which it was impossible for their respective contents to escape. Upon dissecting the pancreatic duct it was found to be stained light green with bile, indicating that the slightly greater pressure in the bile duct, probably due to the contraction of the gall-bladder, had forced bile into it. An acute hæmorrhagic pancreatitis with disseminated abdominal fat necrosis existed.

The same writer has also analyzed the reported cases of acute pancreatitis and finds that cholelithiasis is very constantly associated with the hæmorrhagic and gangrenous forms of the lesion. On the other hand, acute pancreatitis is a rare condition as compared with the relative frequency of cholelithiasis. In this connection it is important to point out, as Opie has done, that in only a small proportion of individuals (in about three out of ten) are the anatomical features such as to allow favorable conditions for bile to penetrate the pancreatic duct. The ducts, in a considerable number of individuals (ten per cent.) open separately and the diverticulum does not exist. Also, the size of the diverticulum bears an important relation to the production of the condition; its variation in length is from zero to eleven millimeters; the average diameter of the orifice being two and a half millimeters. In only thirty of Opie's 100 examinations did the length reach five millimeters. Thus it is evident that a stone to produce obstruction of the duodenal orifice only, must be relatively smaller than the diverticulum, for otherwise the orifices of both ducts would also be obstructed and the secretions forced back upon their respective organs.

While cholelithiasis is thus definitely established to be an important factor in the etiology of acute pancreatitis, it does not explain all cases. Many cases have been reported in which neither clinical history nor autopsy affords evidence of cholelithiasis, though it is noteworthy that since attention has been called to this association these cases are not so numerous. It should also be noted in this connection that the stone after obstructing the papilla orifice and causing a pancreatitis may pass into the intestine and escape observation, or perhaps pass from the intestine entirely. A dilatation of the diverticulum may in such cases indicate the previous resting place of the stone. The following case would appear to be an example of this kind:

Clinical abstract: Patient of Dr. W. E. Fay, of Boston, Mass.—Robust woman, aged thirty-six, with history of occasional sharp attacks of gastroenteritis after excessive indulgence in wine. "The mortal attack began with a 'French' dinner on Thanksgiving Day. From claret she changed to whiskey, drinking considerable between November 29th and December 8th. When first seen on the latter of these dates she was tremulous and sleepless, with wild look in the eyes, intense burning in epigastrium and violent and continuous emesis. Neither water nor cracked ice could be retained. The vomitus was green, thin and acid. After hypodermic use of morphine and careful administration of chloroform, almost steadily for an hour, sleep was obtained lasting three hours. Restlessness then returned, with frequent hiccough, and ceaseless cry for water, which was rejected in whatever quantity or temperature given. Washing of stomach, and paraldehyde administered by enema afforded temporary relief. Abdomen was distended. Obstinate constipation was overcome by high enemata. Persistent flatulence was present in both stomach and bowel, and considerable pain centering in the epigastrium and extending throughout the abdomen. This condition continued with temporary alleviations for nine days after she was first seen. Then, December 17th, slight jaundice was noticed. The patient desired nothing but frequent drinks of milk and limewater. December 20th the patient sitting up and begins to eat gruel, but has no energy. December 24th, sudden enlargement of right parotid and adjoining glands with redness extending below angle of jaw; considerable emaciation has taken place. After sitting up parts of two or three days, which was agreeable to her, there was increase of tenderness throughout the abdomen. Temperature rose to 101 degrees. Distention was constant, free fat appeared in the urine; sugar was present. The patient sank rapidly and died on the 30th."

Autopsy, performed six and one-half hours after death.

Anatomical diagnosis: Hæmorrhagic and gangrenous pancreatitis with fibrinous peritonitis and accumulation of grumous fluid in peritoneal cavity. Multiple fat necroses of omentum, mesentery, epiploic appendages and subperitoneal fat generally. Acute duodenitis with dilation of orifice of duodenal papilla. Localized dilatation of common bile duct. Dilatation of pancreatic duct. Fatty degeneration of heart, liver and kidneys. *Abdomen*—Excessive amount of subcutaneous fat. Omentum, mesentery, epiploic appendages and abdominal fat generally closely studded with round or oval greyish-white areas two to five millimeters in diameter and distinctly circumscribed. Many of the greatly enlarged epiploic appendages (3 x 1.5 cm.) are entirely necrotic. In pelvis and both flanks is a thin greyish-red greasy fluid containing small black shreds of friable material. Omentum is glued to anterior abdominal wall by a blood-stained fibrinous exudate. A similar exudate covers the coils of the small intestine. The position of the pancreas is occupied by a soft friable, irregular reddish-black mass 4 x 1.5 centimeters, freely moveable. The cavity in which this mass lies is lined by reddish-black necrotic tissue, which adhere in places to colon and stomach. The mass on section shows at splenic end irregular areas of greyish pancreatic tissue separated by dark red lines of hæmorrhage and necrosis. Elsewhere it is uniformly necrotic. *Duodenum*—Contains material similar to that about pancreas and its mucosa is injected. The orifice of papilla is dilated and in the duct one centimeter from the orifice occurs a circular dilatation with smooth walls, one and five-tenths centimeters in circumference. No calculi are found in gall-bladder, ducts or intestine. The pancreatic duct is dilated and separated from the pancreas; a probe from duodenal end passing directly into the cavity about the gangrenous pancreas. Bacillus coli was found in the necrotic material about the pancreas.

While this case is not conclusive, in as much as the stone was not found, the anatomical condition indicates that a calculus, at some time, was lodged in the common duct and the possibility of later occlusion of the papilla with final discharge of the stone is evident.

The Sequence of Histological Changes in Hæmorrhagic Pancreatitis.—Much discussion has arisen concerning the precedence and succession of the three principal phenomena—hæmorrhage, necrosis and exudation. Katz and Winkler believe that the necrosis follows hæmorrhage and is the direct result of injury produced by the extravasated blood. Hlava found extensive occlusion of the blood vessels after acid injection and considered it to be the cause of both necrosis and hæmorrhage. Opie found hæmorrhage intimately associated with necrosis and followed only secondarily by inflammatory changes. From his earlier experiments Flexner drew the conclusion that hæmorrhage and necrosis are the result of the simultaneous action of the injurious agent upon blood vessels and tissue, and that they occur coincidentally. In a later series of experiments by Dr. Flexner and myself an attempt was made to definitely settle these mooted points. Dogs under choretone narcosis received injections of one to two per cent. solutions of hydrochloric acid into the duct and directly into the parenchyma of the pancreas. Small portions of the organ were removed after periods varying from thirty-five minutes to eight hours and examined histologically. It was found that hæmorrhage, hyalin necrosis and exudation of fluid and leucocytes could be readily demonstrated in tissue removed one hour after injection. Sections taken at the end of eight hours represented the pathological process at its height. That these lesions are correlated in the pancreas may therefore be considered as demonstrated.

At the same time in order to determine the effect of red blood corpuscles upon the pancreatic tissue, a condition analagous to hæmorrhage was brought about by the injection of sterile defibrinated dog's blood through the duct and directly into the parenchyma. Such injections did not set up an acute pancreatitis but were followed by chronic proliferative changes. Similar injections of dog's serum were negative.

Gangrenous Pancreatitis.—Experimental and post-mortem observations both indicate that in the majority of cases gangrenous pancreatitis is secondary to an acute hæmorrhagic inflammation of the organ. The tissue, primarily the seat of hæmorrhage, necrosis and inflammation readily becomes gangrenous under the influence of putrefactive micro-organisms invading it from the intestinal canal. The association of hemorrhage and gangrene frequently seen at autopsy was first emphasized by Fitz, who also recognized however the possibility of the lesion originating from perforating inflammation of the gastro-intestinal canal or of the biliary passages.

In the series of experiments by Dr. Flexner and myself, two examples of gangrenous pancreatitis following acid and bile injections respectively, occurred. Death occurred in each instance in less than twenty-four hours, and the gangrenous portions of the pancreas were studded with emphysematous blebs. Films showed bacilli having the morphology of B. aerogenes capsulatus. Futhermore, gangrenous pancreatitis has the same relation to cholelithiasis as has the hæmorrhagic form. In Opie's table of thirty-seven cases of acute pancreatitis associated with cholelithiasis, eight are described as hæmorrhagic and gangrenous and thirteen as gangrenous. Disseminated fat necrosis is a striking feature of this lesion.

Suppurative Pancreatitis.—Suppurative inflammation of the pancreas, unlike the hæmorrhagic and gangrenous forms, does not differ essentially from that of other organs. It may be primary or secondary. The relation of the pancreas to the intestine allows the possibility of infection through the duct, while lesions of adjacent hollow viscera may extend directly or as the result of perforation. In general infection of the blood, pyæmic abscesses may develop in the pancreas as in other organs. Direct extension of an infectious pylephlebitis may also occur. These lesions are seldom accompanied by extensive necrosis, hæmorrhage or disseminated fat necrosis. The accumulation of pus is not diffuse but occurs usually as localized abscesses. Hæmorrhage and necrosis if present are generally focal in character, suggesting the local action of an irritant. Rarely the pancreas may be entirely destroyed and appear as a sequestrum in a pus cavity. Experiments, especially those of Flexner, show that abscesses of the pancreas may follow the injection of various fluids, as weak solutions of hydrochloric, sulphuric and nitric acids, sodium hydrate and suspensions of the B. pyocyaneus. In these experiments we have evidently a primary necrosis due to the irritant and a secondary invasion by micro-organisms. Körte, in a few instances, produced abscesses by injecting pus containing a bacillus of the colon group. These experimental lesions are seldom accompanied by fat necrosis. A study of the lesion in man and of the experimental findings indicates that this suppurative form of pancreatitis is due to some local influence causing limited necrosis and suppuration. There is, however, some evidence that duct obstruction may rarely lead to the condition probably in that it favors the entrance of bacteria. In

Opie's table, previously quoted, "purulent pancreatitis" occurred in four of forty-one cases complicated by cholelithaisis. The common duct in only one of these, however, contained a stone. The following case illustrates suppuration of the pancreas with fat necrosis, accompanying cancer of the diverticulum and cholelithiasis:

Records of the Bender Laboratory, Autopsy No. 0.676. Clinical abstract: The individual, a male aged seventy-three, patient of Dr. A. W. Elting, was admitted to the Albany Hospital on August 24, 1903, with a history of hepatic colic which began on August 15th. Since May 1st he had suffered from gastric distress, nausea and dull pain in region of stomach, and had lost in strength and weight. Physical examination reveals a jaundiced, emaciated, feeble individual with evidence of arterio-sclerosis, enlarged heart and emphysema of the lungs. Upon palpation of abdomen a distinct irregular tumor mass was felt in the epigastrium; deep pressure elicited some tenderness. During patient's sojourn in the hospital there was slight change in his condition. The jaundice continued and nausea after the taking of food persisted. The pain subsided. Physical examination revealed nothing new. Emaciation and weakness progressed rapidly, and death occurred on September 11th.

Autopsy, by Dr. A. T. Laird, twelve hours after death.

Anatomical diagnosis: Cancer of the diverticulum of Vater with ulceration of duodenum and metastases in liver; dilatation of common duct and gall-bladder; cholangitis, gallstones free in colon; jaundice; multiple abscesses of head of pancreas; peripancreatic fat necrosis; hæmorrhage into intestine; arterio-sclerosis.

The individual is extremely emaciated and jaundiced. In *duodenum,* about one and a half centimeters above duodenal papilla, is a circular ulcer three centimeters in diameter with irregular edges and firm indurated bile-stained base. The base of the ulcer, five millimeters in thickness, rests upon the head of the pancreas to which it is intimately adherent and upon indurated lymph nodes. The tissues beneath the papilla are infiltrated by a dense greyish-white diffuse growth of new tissue. The duodenal papilla is prominent and rests on the indurated mass below it; bile readily flows from its orifice on forcible pressure of gall-bladder. Common duct is slightly dilated. Gall-bladder measures ten centimeters in length and is distended with thick fluid bile, no calculi present. *Liver* is of a dark uniform greenish color, and bile ducts are distended with thick bile. Scattered throughout the organ are numerous greyish-white firm areas, one-half to two centimeters in diameter, of fairly definite outline. *Pancreas* measures fourteen centimeters in length. The duodenal end for a distance of five centimeters is irregularly swollen. On section a yellowish purulent fluid escapes and the cut surface presents numerous abscesses of varying size with thin trabeculated walls. The middle portion of the organ is firmer than normal. Splenic end is unaltered. Duct patent though its proximal portion is surrounded by the new growth. Peripancreatic fat presents numerous distinctly circumscribed yellowish opaque areas. The small intestine is blood-stained throughout its length and contains an accumulation of blood, fluid and clotted. A lesser amount of blood is found in the large intestine. The source of the hæmorrhage is apparently the ulcer in the duodenum. In the lower portion of the discending colon are found two smooth facetted calculi composed of cholesterin and inspissated bile. *Histological examination* shows a cancer about and involving the diverticulum and the common duct with extension to the duodenum and to the head of the pancreas and with metastases in the liver. The head of the pancreas is the seat of advanced perilobular pancreatitis, in the midst of which are numerous abscesses. These abscesses are chronic in character, and contain much necrotic material and zoogloea of large thick bacilli. The tail of the pancreas is the seat of a slight perilobular pancreatitis. Typical fat necroses are numerous. The ducts are dilated and contain an accumulation of mucous and desquamated epithelial cells.

Fat Necrosis.—This condition is so constantly a comcomitant of acute pancreatitis and its elucidation so entirely the result of experimentation that a consideration of the experimental lesions of the pancreas would be incomplete without reference to it. Hæmorrhagic and gangrenous pancreatitis, as they occur in man or as the result of experiment, are generally accompanied by this peculiar lesion of the fat tissue. Rarely it occurs in connection with suppurative lesions, and occasionally, as will be pointed out later, with chronic interstitial pancreatitis. The characteristic appearance is that of small round or oval areas white or greyish-white in color and usually sharply circumscribed. Microscopic examination shows these areas to be composed of necrotic fat cells. In early necroses fatty acid crystals may be demonstrated. These areas are found most abundantly in the neighborhood of the pancreas and are usually limited to the abdominal fat, but they may be widely disseminated and appear in the fat beneath the pericardium and the pleura, in the subcutaneous fat and in the marrow of long bones. Fitz first suggested that fat necrosis is the result of a lesion of the pancreas, but to Langerhans belongs the credit of first demonstrating the essential nature of the process. By chemical and histological studies he showed that the changes within the fat cells are associated with the splitting of the fat molecule into its fatty acid and glycerine. The glycerine is absorbed and the acids are deposited in the cells as needle-like crystals. The cell loses its nucleus and is apparently necrotic. Later, chronic proliferative changes occur about the areas. Leucocytes may enter the necrotic fat but when numerous, indicate invasion by bacteria. Although bacteria have been frequently found in these necroses they are not concerned in the production of the lesion and must be considered as secondary invaders. Instances in which the injection of bacteria into the pancreatic duct has resulted in the necrosis of fat are to be explained by the setting free of pancreatic ferments as the result of injury to or inflammation of the gland.

The first experimental proof of the relation of fat necrosis to pancreatic ferments was offered by Langerhans, who injected suspensions of the comminuted pancreas of the rabbit and dog into the perineal fat of the rabbit. One of his thirteen experiments was successful and he concluded that these necroses are due to the action of the fat splitting ferment of the pancreatic juice. Jung obtained similar results by introducing portions of the fresh pancreas of one animal into the adbominal cavity of another; Hildebrand and Dettmer, Williams, Whitney, Flexner, Milisch, Körte and Opie have obtained similar results by various injuries allowing the escape of the pancreatic juice into the adjacent fat and the peritoneum. Their methods include ligation of ducts and vessels; ligation, laceration and incision of the parenchyma; and excision of portions of the organ. The experiments of Hlava, Körte, Oser, Opie, Flexner and Pearce, in which an acute pancreatitis, usually hæmorrhagic, has followed the injection of various substances as acids, alkalies, gastric juice, bile, bacteria, etc., have also caused the appearance of fat necrosis. In these experiments the fat necroses are not due to the substance injected but to lesions of the pancreas which allow an escape of the pancreatic juice. The final link in this chain of experimental evidence was Flexner's demonstration, by chemical test, of the presence of a fat splitting ferment in the necrotic foci. Portions of the necrosed foci, from both human and experimental cases, when brought in contact with neutral butter fat caused a splitting of the fat with the freeing of fatty acids recognizable by their odor and reaction.

It has been claimed by some writers, especially by Oser, that the presence of a fat splitting ferment will not explain the widely disseminated necroses, such as occur in the sub-pericardial, sub-pleural, and sub-cutaneous fat. Opie has, however, in a series of duct ligations demonstrated by Flexner's method the presence of the fat splitting ferment in the distant necroses of the subcutaneous and subpericardial fat as well as in the peri-pancreatic foci. The diffusion of the ferment in these experiments he also found was hastened when the secretory activity of the pancreas was stimulated by injection of pilocarpine.

Wells (*Journal of Medical Research, 1903, ix., 70*) has found that commercial "pancreatin" will produce typical fat necrosis, but that this power is lost after heating for five minutes at some point between sixty-five and seventy-one degrees centigrade. Its power to produce fat necrosis decreases proportionally as the temperature is raised above fifty-five degrees Centigrade. These observations indicate an enzyme action as the source of the lesion. He was unable, however, to determine which of the pancreatic enzymes causes fat necrosis, and could not produce fat necroses with the lipolytic extracts of hog's liver or cat's serum used either alone or in combination with trypsin. He thinks it possible that the lipase causes fat splitting after some other ingredient of the pancreatic juice has injured the cell; fat splitting is subsequent to the necrosis and not its cause. The lipase normally in fat tissues exerts no fat splitting effect upon necrotic fat if the latter be preserved from external influences. Foci of fat necrosis became visible to the naked eye three to five hours after the application of "pancreatin" and were found outside the abdominal cavity as early as twelve hours after intra-peritoneal injection.

In considering the application of the results of experimental fat necrosis to the lesion as seen in man, it must be borne in mind that fat necrosis bears the same relation to obstruction of the pancreatic ducts as jaundice does to hepatic obstruction. Obstruction to the outflow of the pancreatic secretion causes its diffusion into the surrounding tissues (Opie). The escape of the ferment in the acute lesions of the pancreas is readily explained by obstruction or destruction of the finer ducts or by injury to the parenchyma.

On the other hand either temporary or permanent obstruction of the duct of Wirsung by calculi or by cancer may be accompanied by fat necrosis. Usually other lesions exist as suppurative or chronic pancreatitis but in a few cases, as those reported by Fraenkel (stone in diverticulum) and by Flexner (stones in common duct) no lesion of the pancreas was found. There can be little doubt that in these cases the calculus causes compression of the pancreatic duct and an accumulation of secretion which finally becomes diffused into the adjacent tissues.

The following case would appear to belong in this group. A chronic atrophic cholecystitis with atrophy of the bile ducts and adhesions to head of pancreas apparently caused pressure upon the pancreatic duct.

Records of the Bender Laboratory, Autopsy No. 0.614. Autopsy by Dr. A. T. Laird, seven and one-half hours after death; female, aged forty-two.

Anatomical diagnosis: Extensive syphilitic ulceration of nose and palate, œdema of lungs, hydrothorax, chronic cholecystitis with almost complete obliteration of gall-bladder and ducts, fat necrosis of pancreas. The gall-bladder is greatly atrophied and lies in a mass of dense fibrous adhesions which bind it to the duodenum and the head of the pancreas, and which also surround and penetrate the foramen of Winslow. The cavity of the gall-bladder measures but two centimeters in diameter. The pancreas measures 17 x 4 x 2 centimeters. At its head, the capsule is much thickened by adhesions binding it to the gall-bladder and to the duodenum. Over its entire surface numerous greyish-yellow opaque areas, not extending into pancreatic tissue, are seen. The consistence of the pancreas is normal.

Histological examination of the pancreas reveals numerous fat necroses, and dilated ducts filled with hyaline and granular material, desquamated cells and a few polymorphonuclear leucocytes. The latter also, to a moderate degree, infiltrate the walls of the larger ducts. No inflammation of the parenchyma proper is evident. The islands of Langerhans are unaltered.

The following accidental finding in a dog indicates that fat necrosis may follow a simple thickening of the orifice of the duct:

"Dog 84—weight 8650 gramms.—Isolated February 6th.—Urine normal on February 7th and 8th. Killed on February 12th for purpose of obtaining organs for injections in connection with cytolytic work. All organs normal except pancreas, the capsule of which is studded with numerous small greyish-yellow areas of definite outline and of firmer consistence than surrounding pancreatic tissue. No evidence of acute or chronic inflammation. No fat necroses of abdominal fat elsewhere. No obstruction of the duct is found. The papilla of duodenum, however, appears as a distinctly elevated, swollen, greyish-yellow ring; a sharp contrast to the normal appearance. A fine probe passes readily into the duct. The second pancreatic duct is not found. The orifice of bile duct, lying one and a half centimeters above pancreatic duct, can be located only by forcing bile from the gall-bladder. Histological examination shows fat necroses, chronic in character; pancreas otherwise normal."

Finally, as pointed out by Opie, we have fat necroses associated with cases of chronic intestitial pancreatitis in which duct obstruction by calculi is not present. Here it is probable that the newly formed fibrous tissues contracts about the smaller ducts, constricts them, and allows an accumulation of secretion which finally diffuses into the adjacent tissues. These necroses are most apt to be parapancreatic. I have found two examples of this condition in the autopsy reports of the Bender Laboratory; in one associated with localized chronic interstitial pancreatitis, in the other with atrophy and lipomatosis. Macroscopic evidence of duct obstruction did not exist. These reports are as follows:

No. 0.223. Autopsy twelve hours after death. Male, aged forty nine.

Anatomical diagnosis: Acute follicular duodenitis and ileitis; acute swelling of spleen and mesenteric lymph nodes; fatty degeneration of liver; arterio-sclerosis; atrophy of pancreas with lipomatosis, auto-digestion and foci of fat necrosis; general infection with the bacillus of Friedländer. The *pancreas* appears to be of normal size, but much of the parenchyma is replaced by diffuse masses of fat tissue. On section small islands of pancreas are seen widely separated by fat tissue. This change is most marked at splenic end where little pancreatic tissue remains. The parenchyma in some areas is whiter and softer than normal, and in other places presents a reddish-brown appearance, suggesting minute hæmorrhages. On the surface and on section several, minute, opaque white points suggesting fat necrosis are seen. No calculi are found in the ducts; the vessels present a few small areas of atheroma.

Histological examination shows small islands of pancreas widely separated by adipose tissue, slight self-digestion of these areas, and typical foci of fat necrosis with minute hæmorrhages. The interlobular connective tissue is increased in amount; the small ducts dilated and some acini appear as duct-like spaces with flattened epithelium and contain a finely granular material. In some islands these altered acini are very abundant and apparently indicate atrophy from pressure within the lumen. The islands of Langerhans are unaltered.

No. 0.382. Autopsy ten hours after death. Male, aged sixty three.

Anatomical diagnosis: Arterio sclerosis, hypertrophy and dilatation of heart; general passive congestion; œdema; double hydrothorax; thrombus of right auricular appendage; multiple infarcts of lungs;

fat necrosis of pancreas. *Pancreas* twenty centimeters long. Twelve centimeters from the tail, over an area two and a half centimeters in diameter, the capsule is greatly thickened; beneath the capsule the pancreas presents a congested area containing many small yellowish-white areas of soft cheese-like consistence. A few similar areas are found elsewhere in the pancreas.

Histological examination reveals a slight localized interlobular pancreatitis, with typical fat necrosis.

It is possible that the first of these cases belongs to the group described by Chiari, in which, in his opinion, self digestion of the pancreas occurs shortly before death as an agonal change and allows the escape of the fat splitting ferment and the development of fat necrosis with associated minute haemorrhages. That fat necroses may develop very quickly is shown in one of the experiments of the series carried out by Dr. Flexner and myself, in which necroses were evident eight hours after injection of a one per cent. solution of hydrochloric acid into the pancreatic duct. Wells has observed their occurrence three to five hours after the application of "pancreatin."

The theory that postmortem digestion of the pancreas may set free the pancreatic secretion and allow the development of fat necrosis has little evidence to support it. In connection with these agonal necroses Opie believes it is possible that shortly before death, owing to alterations in the character of the pancreatic juice, it may become thick and viscid, in consequence of which it flows slowly. Stagnation and slight diffusion of the secretion may result and cause the insignificant necroses occasionally seen.

ALBANY HOSPITAL.

SECOND ANNUAL REPORT OF PAVILION F, DEPARTMENT FOR MENTAL DISEASES, FOR THE YEAR ENDING FEBRUARY 29, 1904.

BY J. MONTGOMERY MOSHER, M. D.,
Attending Specialist in Mental Diseases.

To the Board of Governors:

I have the honor to present the second annual report of the operations of Pavilion F, for the year ending February 29, 1904.

There remained in the Pavilion on March 1, 1903, fourteen patients, eight men and six women. There have been admitted during the year ninety men and sixty-seven women. The whole number of patients under treatment during the year was, therefore, one hundred and seventy-one.

There have been discharged one hundred and fifty-seven patients, ninety-one men and sixty-six women; and there remain in the Pavilion at the end of the year seven men and seven women.

The following tables show the forms of disease and the results of treatment for the year, and since the opening of the Pavilion:

TABLE 1—SHOWING THE FORMS OF DISEASE AND THE RESULTS OF TREATMENT FOR THE YEAR.

FORM OF DISEASE	Recovered		Improved		Unimproved		Died		Remaining		Total		TOTAL
	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	
Acute delirium	6	2	..	1	..	1	1	2	1	1	8	7	15
Confusional insanity	1	1	..	3	..	...	2	1	1	...	4	5	9
Melancholia	3	5	2	3	1	8	..	1	..	2	6	19	25
Mania	1	2	3	4	2	1	..	...	..	2	6	9	15
Primary dementia	..	...	2	1	1	...	..	...	..	...	3	1	4
Recurrent insanity	.	...	..	1	..	...	..	...	..	...	..	1	1
Chronic delusional insanity	..	...	..	...	..	1	..	...	..	...	..	1	1
General paralysis	..	...	..	...	3	...	1	...	..	...	4	...	4
Terminal dementia	..	...	2	3	6	7	2	3	2	1	12	14	26
Imbecility and idiocy	..	...	3	1	2	...	..	...	.	...	5	1	6
Acute alcoholic delirium	18	2	2	...	1	...	2	1	1	...	24	3	27
Drunkenness	4	3	3	...	1	...	..	...	1	...	9	3	12
Ptomaine poisoning	1	...	..	...	..	...	..	...	..	...	1	...	1
Epilepsy	.	...	1	...	1	...	..	...	..	...	2	...	2
Neurasthenia	1	...	1	1	1	1	..	...	1	...	4	2	6
Hysteria ..	..	...	..	...	..	...	..	...	..	1	..	1	1
Nervousness	..	1	..	...	..	...	..	...	..	...	..	1	1
Hypochondriasis	..	...	2	...	1	...	..	...	..	...	3	...	3
Pseudo-paresis	..	...	1	. .	..	...	..	...	..	...	1	...	1
Organic brain disease	..	...	2	1	..	...	..	1	..	...	2	2	4
Locomotor ataxia	..	...	..	...	..	1	..	...	..	...	..	1	1
Hydrophobia	..	...	..	...	..	...	1	...	..	...	1	...	1
Malingering	..	...	..	...	1	...	..	...	..	...	1	...	1
Exhaustion from jaundice	..	...	..	...	..	...	..	1	..	...	..	1	1
No diagnosis	..	...	..	...	.	...	..	...	..	...	2	1	3
TOTALS	35	16	24	19	21	20	9	10	7	7	98	73	171

TABLE 2—SHOWING THE FORMS OF DISEASE, AND THE RESULTS OF TREATMENT SINCE THE OPENING OF THE PAVILION, FEBRUARY 18, 1902.

FORM OF DISEASE.	Recovered.		Improved		Unimproved		Died		Remaining		Total		TOTAL
	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	
Acute delirium	8	8	..	1	..	1	1	3	1	1	10	14	24
Confusional insanity	3	1	1	4	..	...	2	1	1	...	7	6	13
Melancholia	7	9	7	15	5	17	..	1	..	2	19	44	63
Mania	1	2	5	6	5	4	..	...	..	2	11	14	25
Primary dementia	..	1	3	1	2	1	..	...	..	...	5	3	8
Recurrent insanity	..	...	..	3	..	...	..	...	..	...	...	3	3
Chronic delusional insanity	..	...	..	1	4	3	..	...	..	...	4	4	8
General paralysis	..	...	1	...	8	...	1	...	..	...	10	...	10
Terminal dementia	..	...	4	6	10	10	3	3	2	1	19	20	39
Imbecility and idiocy	..	...	6	2	2	...	..	...	..	...	8	2	10
Acute alcoholic delirium	44	2	7	2	2	...	4	1	1	...	58	5	63
Drunkenness	11	4	8	...	1	...	..	...	1	...	21	4	25
Drug addiction	..	1	1	1	..	1	..	...	..	...	1	3	4
Ptomaine poisoning	1	2	..	...	..	...	..	...	..	...	1	2	3
Uraemia	..	...	..	...	..	...	1	...	..	...	1	...	1
Puerperal eclampsia	..	...	..	...	..	...	..	1	..	...	...	1	1
Epilepsy	..	...	1	...	2	...	..	...	..	...	3	...	3
Neurasthenia	1	...	1	2	1	2	..	...	1	...	4	4	8
Hysteria	1	...	..	...	..	...	..	...	..	1	1	1	2
Exophthalmic goitre	..	...	..	1	..	...	..	...	..	...	...	1	1
Nervousness	..	1	..	...	..	...	..	...	..	...	...	1	1
Hypochondriasis	..	...	2	...	1	...	..	...	..	...	3	...	3
Pseudo-paresis	..	...	1	...	..	...	..	...	..	...	1	...	1
Organic brain disease	..	...	2	1	..	...	..	1	..	...	2	2	4
Locomotor ataxia	..	...	..	...	..	1	..	...	..	...	..	1	1
Hydrophobia	..	...	..	...	..	...	1	...	..	...	1	...	1
Malingering	..	...	..	...	1	...	..	...	..	...	1	...	1
Exhaustion from jaundice	..	...	..	...	..	...	..	1	..	...	...	1	1
No diagnosis	..	...	..	...	..	...	..	...	..	...	3	1	4
TOTALS	77	31	50	46	44	40	13	12	7	7	194	137	331

ADMISSIONS

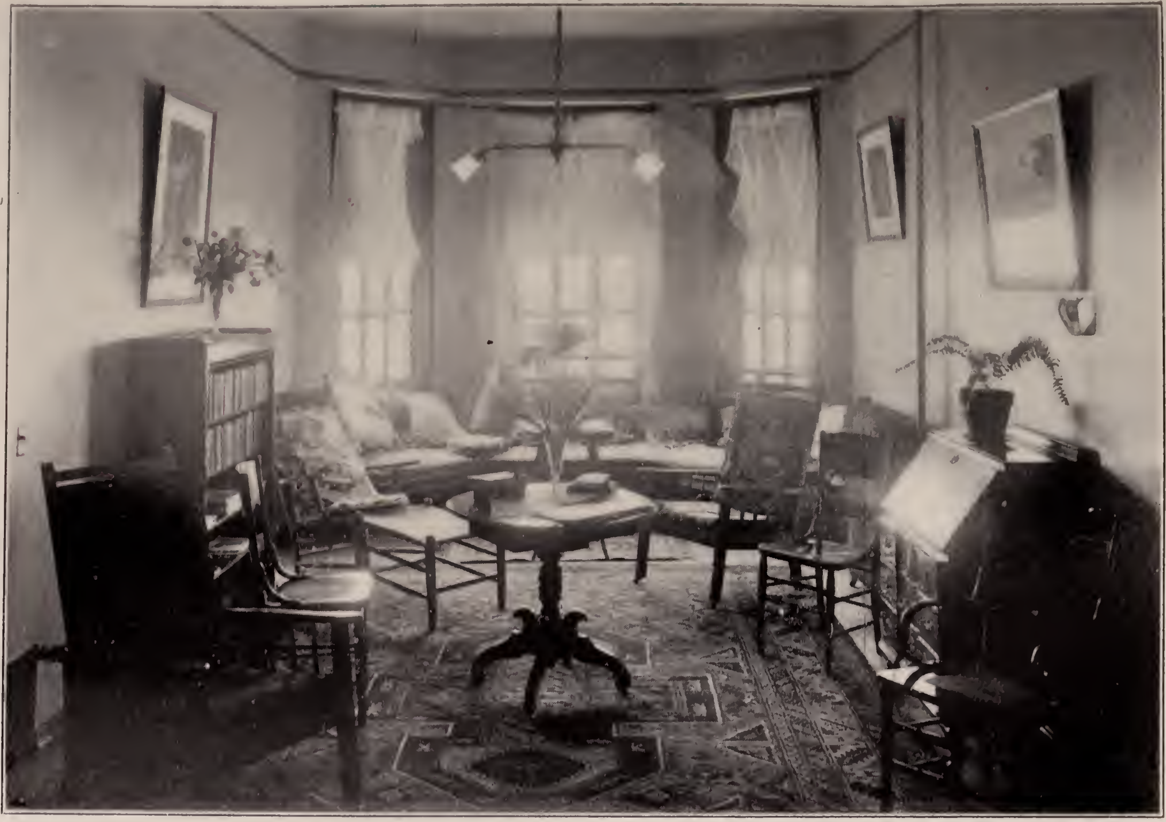
The conditions upon which patients may be admitted and detained have been at times a source of anxiety, and at several conferences of the Board of Governors and the executive officers of the Hospital have had careful consideration. A person may not appreciate in himself the presence of mental disorder of a degree requiring treatment, and this deficiency must be supplied by the good offices of family or friends. It becomes their duty to provide means for the restoration of mental health, without harm to the patient or violation of his rights, and elaborate laws have been evolved for protection of the victims of mental disease against errors of judgment or the evil purposes of designing people. Under their operation and the systems of official supervision of institutions there is little opportunity for the unjust detention of any individual capable of appreciating and respecting his liberty. But the statutory exactions which so protect one person do injury to another. For the patient in whom a sudden and critical state of delirium develops the delays of the law may prove fatal. In such cases the delirium often follows a preliminary stage of nervous and mental debility, for which treatment is not sought because of aversion from the declaration of mental incompetency preliminary to hospital care. From the medical standpoint this situation is most unfortunate; applied to purely physical diseases it could not occur. We may imagine, for example, a requirement involving a delay of two or three days, or one day, or even twelve hours, for the decision of a court, before a patient suffering with appendicitis or pneumonia could be placed under proper medical treatment! And yet the mental case is just as acute and critical, requires as much skill and care, and with this skill and care, promises as good results, as the case of appendicitis or pneumonia. The legal commitment of such a patient is often sought, because proper treatment can only be had in institutions permitted to receive patients upon this basis.

Under the conviction that mental patients are entitled to the consideration of a general hospital, Pavilion F was projected.

As illustrating the fellowship of mental and physical disease, attention may be directed to the fact that twenty-four patients have been transferred to Pavilion F from other wards of the Hospital.

Another class of patients for whom Pavilion F has proved a convenience are those who have been legally declared incompetent and are under commitment to a hospital for the insane. They have been properly and comfortably provided for during the few days pending transfer.

There remains a small number of patients for whom Pavilion F unfortunately cannot provide. They resent detention and decline to be held. They are in an abnormal mental condition, but their final disposition is a delicate question, and one which is much more safely left for judicial determination than for personal opinion. It is surely beyond the authority of the Hospital to lay forcible hands upon any individual. The Hospital has not only not sought but has declined any license or



SITTING ROOM, PAVILION F

BED ROOM, PAVILION F

charter by which it would be placed upon the footing of an institution for the insane. To accept such prerogative would defeat the fundamental purpose. Husbands with quarrelsome wives, wives with intemperate husbands, children with degenerate parents, parents with disobedient children, have applied for relief from their burdens. In some instances the erring member has been decoyed to the Hospital: in one case the family physician thrust the patient into a room and held the door; in another the husband remained over night with his wife in vainly persuasive efforts. Whether better results could have been accomplished by honesty than by evasion and deceit is not to present purpose. A widely-known clubman became boisterous and was invited by some well-meaning but indiscreet friends to visit the Hospital. He declined to remain, and the Hospital was desired to detain him, which was impossible. He was in an excited and manifestly abnormal condition, but our course was dictated by the necessities of the situation, and not by a sentiment with which he was not in accord, although we preferred to help him. He demanded his "rights," and was placed under arrest, being then adjudged incompetent and committed to a hospital for the insane after a distressing scene in court. Fortunately such cases are few, but the rebellious and uncompromising mental state, though it be morbid, precludes any anticipation of the functions of the courts.

It may now be definitely stated that all patients treated in Pavilion F, except those under commitment awaiting transfer, are admitted upon their own volition, and are entitled to leave the Hospital upon their request. As to the manner of their departure some discretion must abide with the Hospital authorities. The friends of harmless patients are requested to remove them; others, whose mental tendencies are doubtful, are referred to the proper authorities who take steps for the protection of the community. That the Pavilion can be satisfactorily administered upon this voluntary basis is amply attested by the statistical table of results.

DISCHARGES

The report upon discharges is especially gratifying. Of the one hundred and fifty-seven patients discharged during the year, fifty-one recovered and forty-three improved. The percentage of cases distinctly benefited is sixty. Since the opening of the Pavilion the percentage of patients discharged as recovered and improved has been sixty-five.

Forty-one patients were discharged unimproved and nineteen died. The causes of death were exhaustion from delirium in eight cases; old age in six cases; melancholia in one case; general paralysis of the insane, tumor of the brain, hydrophobia and chronic jaundice, each, one case.

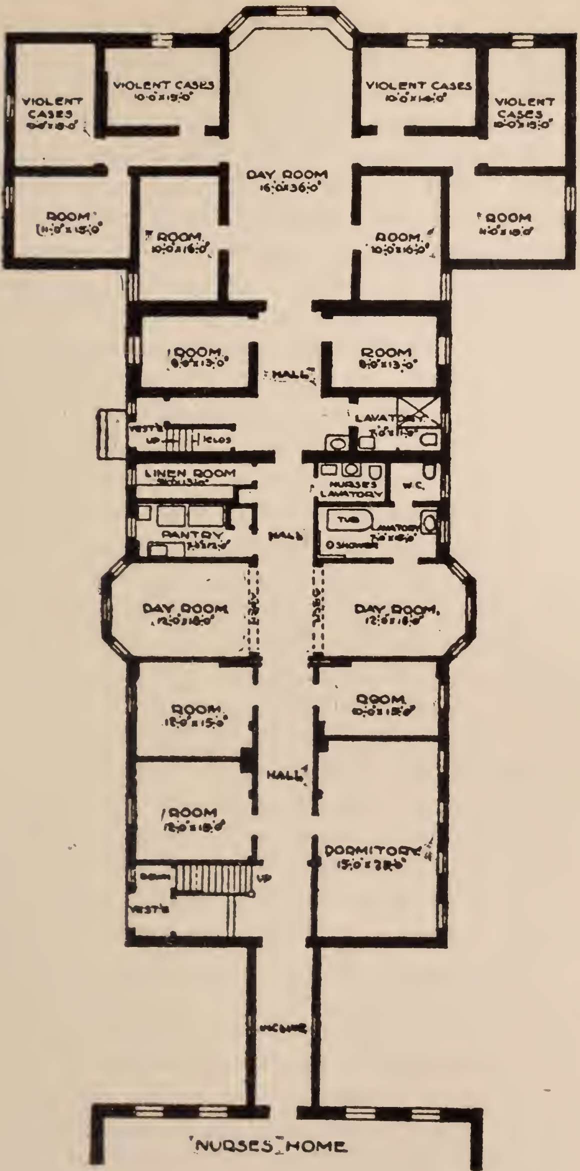
Treatment

The cases for which Pavilion F is especially adapted are, in common with other departments of the Hospital, those of acute disease. Conditions of excitement, delirium or stupor, arising from shock or exhaustion, with accompanying toxic states, predominate. It is necessary, in these cases, to check the action of injurious causes, to eliminate the accumulation of waste products, and to restore nutrition and strength by rest, over-feeding and tonic measures. It is hoped that in the near future the different groups of cases may be so arranged as to justify a more technical report upon the methods adopted.

In addition to these physical measures, the importance of the environment in the care of mental cases has long been recognized by alienist physicians. This has been discussed under the title of "moral" or "mental" treatment. The first and most important principle of moral treatment is the establishment of a feeling of confidence in the patient. This has been sought by encouraging visitation. It has been found to our complete satisfaction, that the frequent presence of the patient's family does much to soften the shock of the removal from home. Visits of this kind, even when friction and disaster have previously occurred, have been utilized to the distinct advantage of the patient. It is necessary, however, that proper restrictions be placed upon this liberal interpretation of the ethics of treatment, that inquisitive neighbors be prevented from indulging a morbid propensity to curiosity. For the same reason general visitation by the public should be controlled.

Additional Construction

During the first year of occupation there were received a disproportionately large number of active cases for whom additional accommodations were required. This fact was pre-



FIRST AND SECOND FLOOR PLANS
PAVILION-F- DEPARTMENT OF MENTAL DISEASES
ALBANY HOSPITAL
ALBANY, N.Y.

A.W. FULLER — ARCHITECTS
W.B. PITCHER — ALBANY, N.Y.

sented to the Board of Supervisors of Albany County and appropriations for enlargement and furnishing were promptly made. The extent and design of the Pavilion, now in use, are shown on the accompanying floor plan, kindly placed at our disposal by the architects, Messrs. Fuller and Pitcher. The new building is substantially constructed, with interior brick walls, and without stud partitions. It is tastefully furnished, and of such design that the clamor from the rooms prepared for the turbulent class cannot annoy other patients. This construction carries with it an important medical principle. It will now be possible to manage discreetly an excited patient, without recourse to stupefying drugs, or other methods of repression. Shouting, rattling of furniture, and pounding on the walls or door, are symptoms of active mental disorder; and should only be controlled within certain bounds when endangering the patient. By adapting the building to the needs of the patient, so that isolation and retirement may be secured, a plan of treatment may be carried out solely in his interests, and not based upon the comfort of his neighbors. It is now possible to close six doors between a noisy patient and the rooms occupied by others. The principles of ventilation, light and heat have been regarded, and every room in the building possesses at least one outside window, from any of which a view of the pleasant landscape, which is one of the features of the Hospital site, may be had. For three windows of each floor an interior sliding wire screen has been placed, so that when needed it may serve for protection; and when not in use is out of sight in the walls. The addition includes a large sitting-room on each floor, so that the classification may be in force during the day. Provision is thus made for equal comfort of either the quiet or disturbed patient. As justification of the enlargement of the building, and as evidence of the importance of adequate provision adapted to the needs, the care of excited patients has become much easier, and the period of excitement is less prolonged and less severe. The probable explanation is that strict isolation in a room is much less frequently demanded than when the accommodations were limited.

The capacity of the Pavilion is now thirty-three beds, seventeen upon the first floor for women, and sixteen upon the second floor for men. Four beds on each floor are placed in an associate dormitory, the others are in single rooms. The number of patients who may be congregated in one sleeping apartment is smaller than in the general wards of the Hospital.

The comment was made by one of our medical visitors that the design of the wards resembles that of an institution for the insane rather than of a general hospital. It need hardly be said that the experience of institutions for the insane cannot be ignored wherever mental cases are to be treated. If this class of patients could be managed in general hospitals, as now constructed and organized, the need of special institutions would cease. The difference lies in the fact that our patients are not usually bed-ridden. It has consequently been necessary to provide tastefully furnished sitting-rooms, with books, games and magazines, for diversion. The victims of general diseases, when able to be out of bed, may return home if they desire, and there is not this demand upon the Hospital for their entertainment. The gifts to Pavilion F have been helpful on this account, and it is hoped that this peculiar want will continue to appeal to the friends of the Hospital that our wards may be attractive and home-like.

Instruction in Mental Diseases

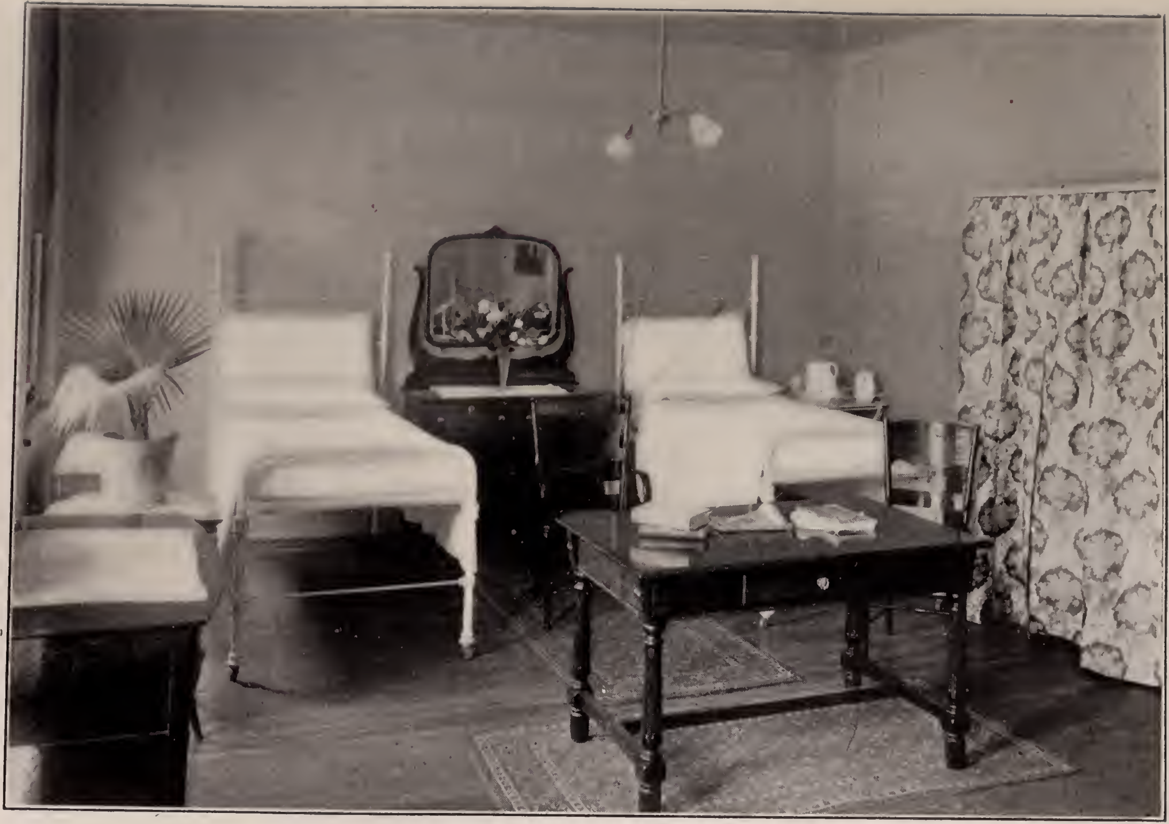
In common with other departments of the Hospital, Pavilion F has been opened to the students of the Albany Medical College for their instruction. On Monday afternoon of each week during the College session, sections of the senior class attend. Cases are assigned to groups of two or three students, who make an examination of the mental symptoms, after a scheme prepared for their use, and before the assembled class, discuss the case and defend the diagnosis. This work is essentially clinical, and arranged to throw light upon the facts met by the physician in the routine of practice, rather than to theorize upon the mysteries of the morbid mind. The opportunities thus afforded for observation of patients during a period of several weeks, perhaps through the entire attack, have been rarely, if ever, given to undergraduate students. Incidentally the analytical reports upon the symptoms of mental disease constitute a valuable addition to the case records of the Hospital.

Instruction is also given to nurses by a few lectures in which the methods of care are pointed out, and by bed-side directions for the observation of both mental and physical symptoms. This instruction is a part of the three-year course for nurses, and all nurses are required to spend several weeks upon the mental wards before the grant of the diploma of the Training School.

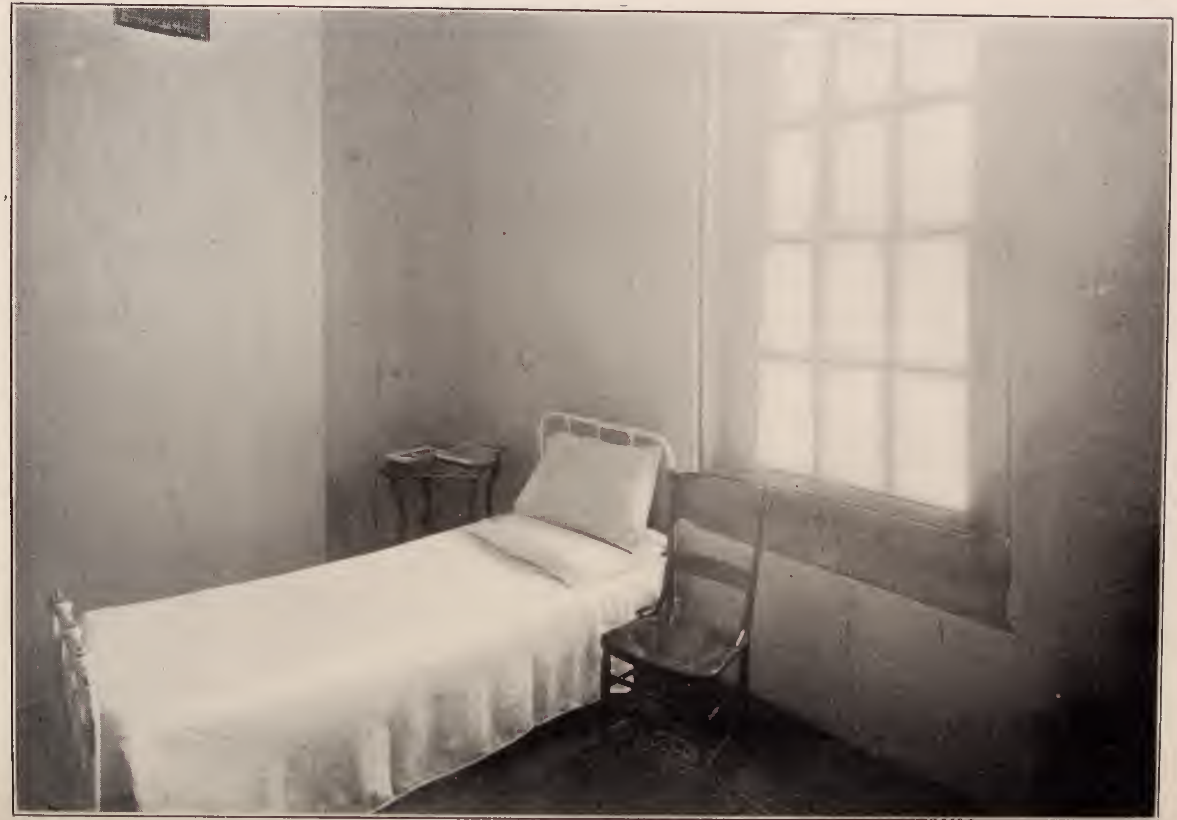
Comment upon Pavilion F.

The publication of the first report, one year ago, excited general comment among physicians and others interested in the problem of the care and treatment of patients afflicted with mental disease. It is with no little satisfaction we are able to say that from the general expression of approval we have not found one dissenting voice. The agitation for provision for mental cases in general hospitals has become active and widespread, and the subject has been officially discussed, as far as our information goes, in several States, in Great Britain and in France. Dr. Frederick Peterson, President of the New York State Commission in Lunacy, has on several occasions expressed entire approval, and physicians from hospitals in the larger cities of the State have written and visited. We have been especially honored by Dr. E. Régis, of Bordeaux, the well-known French authority on mental medicine, who makes extended reference to Pavilion F in a communication to *La Presse Médicale*, of September 12, 1903. The following communication, under date of July 19, 1902, has been received from Dr. John Macpherson, Commissioner in Lunacy for Scotland:

> I have to thank you for your kind letter and for the several reprints of your article from the *American Journal* and from the Albany Medical paper, which duly reached me. These papers have been freely exhibited to the leading medical authorities, and others, in Edinburgh, who are most interested in the treatment of early cases of insanity in the general hospital here. They have, I am in a position to inform you, greatly strengthened our hands: for, as I formerly explained to you, a precedent from our American cousins has much more weight than any continental expressions we have been able to quote. I am glad to say that the medical opposition to our scheme has become considerably modified since I last wrote to you. The Infirmary Staff have issued a memorandum generally approving of the proposal, but suggesting certain difficulties which we, at least, do not regard as insurmountable. We are therefore constrained to hope that, with



ASSOCIATE DORMITORY, PAVILION F



ROOM FOR EXCITED PATIENT, PAVILION F, SHOWING SLIDING WIRE SCREEN FOR WINDOW perseverance and with the help of time, we shall, at no great interval, follow your good example.

The following remarks from different sources may be quoted:

The Journal of Mental Science, London, July, 1903: Women nurses have been entrusted with the care of both men and women, an arrangement that is reported to have worked satisfactorily. The experiment has been so successful that it is to be continued, and we urgently hope that similar additions may soon be made to British hospitals.

American Medicine, Philadelphia, May 9, 1903: Many valuable ideas originate in the Albany hospital, but those in charge are to be especially congratulated upon the inception and splendid showing of Pavilion F.

Journal of the American Medical Association, Chicago, May 2, 1903: He speaks highly of putting the male wards in charge of female trained nurses.

Philadelphia Medical Journal, July 12, 1902: We believe that such hospitals have a legitimate field.

Ibid, April 11, 1903: The plan of treatment is not given in detail, but we judge from the good results that it was largely by rest and isolation, and by improving nutrition. The further work of "Pavilion F" will be watched with interest.

ARNOLD E. SMITH, ESQ., Ogdensburg, N. Y., for several years associated with the management of the St. Lawrence State Hospital: I desire to congratulate you on the results of the first year of your emergency Pavilion, the report of which I note, and have read with much interest, in the April ANNALS. How ideas grow and develop! How slowly and yet how surely the progress!

One hundred and seventy-four mentally ill people have come *voluntarily* to the "Albany Hospital" for help which otherwise as a rule, except for your Pavilion F, they would have been unable to obtain without being officially declared "insane," and you have demonstrated that over one hundred of the number did not deserve that mark. If nothing more, this is enough to justify your project and cause you and me to exult and be glad in recalling our many conferences and mental speculations upon the subject of such provision for such cases, especially our ideal of an annex, under suitable legal authority, to each of our State hospitals. *It will come,* and the Commission will amplify in the reports its conception and development of this humane provision.

But, Doctor, you are making a record that cannot be wiped out. They may appropriate your plans, adopt the methods of your administration, fail to give credit, but "Pavilion F" of the Albany Hospital will nevertheless stand as the "pioneer" of this idea.

The number of transfers to the State Hospitals, a part of the anticipation and design, is a less per cent. than I expected and therefore a gratifying justification of the project. It demonstrates the prudence and humanity of a more deliberate and cautious selection in committing to institutions especially designed for the insane.

I observe with much satisfaction the foothold you have thus far secured, the officials already recognizing your Pavilion and I note becoming favorable to improved facilities. I am especially gratified at this, and realize how it must satisfy you that the discouragements of your early efforts are being overcome. This feature I am sure will be cumulative and eventually enable you to quite perfect your ideal.

In this connection I will express the hope that you will not permit advances to overcome the primary object—that you will withhold your institution from becoming a place of permanent detention, in that respect taking on the character of a public or private asylum, but that you will rigidly hold it as a provision of your main hospital where those mentally disturbed may voluntarily seek and receive proper treatment without being classed, legally or otherwise, as insane, or as having been confined in an institution for the insane. Don't hang on to anybody that ought to be committed to a legally constituted institution for the insane and don't seek any legislation that will give a tinge of that character to your Pavilion. This is the shoal on which your ideal is liable to be wrecked, and, *as the dividing line is very close to your channel,* you must hang on to your rudder and watch the compass—proper care and treatment without admitting or assuming insanity.

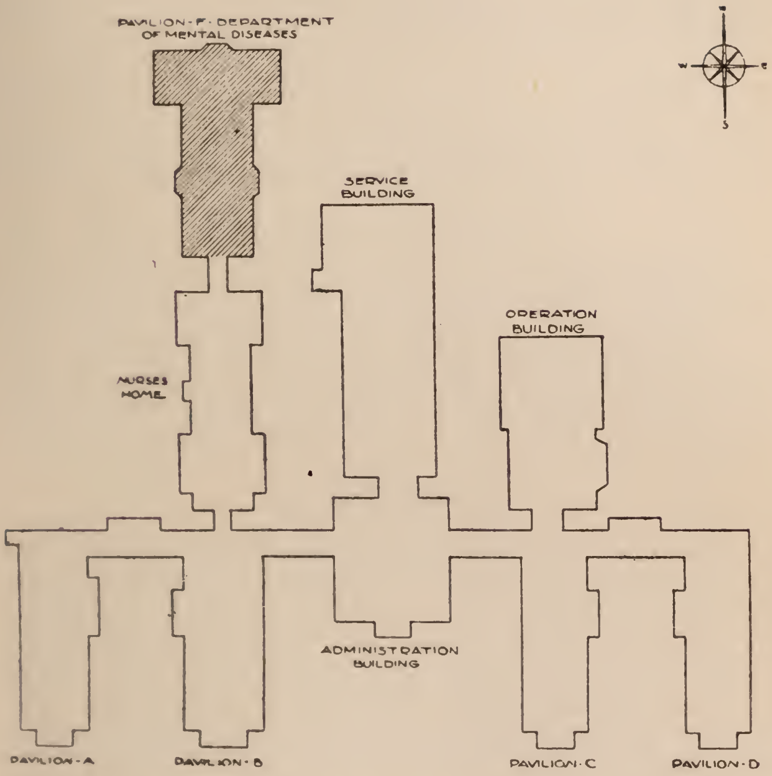
Dr. John B. Chapin, Medical Superintendent of the Pennsylvania Hospital for the Insane: Pavilion F seems to stare one in the face in whatever direction he may look for new things. The success of Pavilion F is certainly very gratifying, and if nothing untoward occurs, will be an object lesson in many ways. If I were you I would call it "Pavilion F of the Albany Hospital" where insane persons, or persons suffering from temporary delirium, incipient insanity, acute insanity, neurasthenia, emergency cases and the like, may, on their voluntary request, receive treatment, or have a temporary refuge awaiting transfer to a hospital if it be necessary.

Dr. H. A. Tomlinson, Medical Superintendent of the State Hospital for the Insane, St. Peter, Minn.: Your reprint of the report of your Pavilion in the Albany Hospital, and its work, has interested me very much and I am glad you have been so successful. Such hospitals in our large cities will do more than any other agency to do away with the superstition and dread concerning insanity.

Rarely does a new enterprise command such immediate and unrestricted commendation. We may have builded better than we knew, and from the universal approval may take fresh inspiration for continuance and improvement of our work.

Exhibit at the Louisiana Purchase Exposition

We have been invited by the State Commission in Lunacy to prepare an exhibit in connection with the State hospitals for the Exposition this year at St. Louis. The Commission has very courteously procured interior views of Pavilion F, which



BLOCK PLAN OF ALBANY HOSPITAL
ALBANY, N. Y.

A W FULLER — ARCHITECTS
W B PITCHER — ALBANY, N Y

are to be exhibited with a history of the Pavilion and a statement of its purposes and work, together with the floor plan and a diagram of the Hospital. Copies of the views are presented herewith.

FINANCIAL STATEMENT

Received for public patients....................	$1,920 86
Received from private patients..................	4,228 03
Total..................................	$6,148 89
The number of days' treatment.................	4,030
The average income from each patient per week.....	$10.68

THE ENDOWMENT FUND

A gift last year of five hundred dollars from Mrs. McCarthy was set aside as an endowment fund, the interest to be used for the benefit of indigent patients. It is hoped that this fund may be increased so that assistance may be rendered some worthy and needy sufferer. The endowment of a bed in Pavilion F would prove a most beneficent charity.

ACKNOWLEDGMENTS

A report of this kind would be incomplete without reference to the activity and interest manifested in Pavilion F by the governors of the Hospital. Its affairs have had consideration in detail, and frequent inspections have been made by the Executive Committee and individual members of the Board. Particular attention to the details of its administration has been given by Dr. Hun, as a special committee of the Board on Pavilion F.

The managers of the Training School for Nurses have cheerfully responded to all demands upon their department, and have coöperated in efforts to perfect a system of rotation of nurses so that all pupils may be instructed in mental and nervous work, and a regular, uninterrupted service may be given. To Miss Dewar, the nurse in charge, the Hospital is especially indebted for intelligent and faithful direction of the affairs of the Pavilion.

The Commissioner of Charities of Albany, Hon. William H. Storrs, has maintained most friendly relations. In the perplexing problems offered by the care and detention of public patients he has coöperated with the Hospital, and by the uniform courtesy of his Department, the work of the Pavilion has been made much easier. At no small inconvenience to himself he made other provision for the care of the patients during the several weeks of construction of the new building, thus relieving Pavilion F of an embarrassing situation. The Committee on Public Buildings of the County Supervisors manifested interest in the new building and furnishing, and to their personal activity is due the satisfactory condition of the present construction and equipment.

The following gifts have been received: from Mr. and Mrs. P. K. Dederick, jr., bookcase, sixty-one books and subscriptions for 1904 to *The Argus, Munsey's Magazine, The Argosy, The Strand Magazine, The Ladies' Home Journal,* and *Pearson's Magazine;* from Isaac W. Maclay, Esq., eleven framed etchings and engravings; from James Hogan, Esq., thirty-one books; from Mrs. W. L. Learned, magazines; from Miss Arthur, flowers; from Miss Bocklowitz, nightgowns and pajamas; from T. E. McGarr, Esq., magazines; and from Mrs. Michael Cronin, a sofa pillow.

Correspondence

NEUROLOGY IN PARIS

There is perhaps no branch of medicine which has undergone more transformation and made greater progress in Paris, within the last few years, than nervous pathology. The great abundance of material in the hands of the many distinguished neurologists, renders this question easy of comprehension; indeed, when one considers the enormous dispensary practice and takes into account the scientific researches constantly going on in the laboratories of such men as Brissaud, Marie, Déjerine, Babinski and others, it is easy to appreciate that clinic and pathology go hand in hand most harmoniously, and that the outcome is a steadily and rapidly increasing progress in neurology.

The first Thursday of every month is the day set for the meeting of the "Societé Neurologique." It is a point worthy of admiration that all the clinicians are present; the most elementary papers are discussed with almost as much warmth as are the masterly communications presented by the professors; the whole morning rolls on too rapidly, teeming with scientific interest and honest enthusiasm. In the light of such earnestness it is not surprising that the French school has acquired so prominent a place in the development and perfection of neurologic medicine. A few of the more recent communications are well worth description.

The Localization of Tabetic Lesions

It was in the January number, 1903, of the *Revue Neurologique* that appeared Pierre Marie's magnificent article on "The Localization of Tabetic Lesions." The author, after having recapitulated the ordinary anatomic findings in a case of locomotor ataxia: atrophy of the posterior nerve roots, opacity and thickening of the pia mater covering the posterior columns, especially in the dorsal region, proposed to explain this localization, by bringing into play the lymphatic distribution of the spinal meninges. He had noticed that in early tabes, the topography of the patches of sclerosis does not always coincide with the intramedullary course of the posterior nerve-roots, and therefore thought that this relationship (which had been so long supported by many observers) was more apparent than real. For him, the sclerosis of the posterior columns is not the extension of the process observed in the posterior nerve-roots, but is dependent upon, and limited by, the lymphatic supply. The pia mater has a well defined lymphatic system as has been proved by Mascagni, Arnold, Krause and Poirier. Furthermore, this system has two independent subdivisions: the posterior and the antero-lateral systems; and pathology has shown that the posterior lymphatic system communicates little, if at all, with the antero-lateral; it is always in the posterior meninges that we observe calcareous plates and that venous and lymphatic stases occur after cerebral hemorrhage. Moreover, laboratory experiments have given eloquent results. Colored substances have been injected between the pia mater and the spinal substance in the posterior region of the cord, and have diffused themselves through the posterior columns; again, experiments performed in Marie's laboratory upon the living dog, have shown that china ink granulations, when injected into the spinal cord, worked their way upwards through the posterior columns, without invading the other individual tracts. From all this it is evident that the posterior columns, their meninges and the posterior nerve-roots have a special lymphatic system, the "posterior lymphatic system," which constitutes an anatomic entity, and Marie thus believes that the lesions of locomotor ataxia can be best explained by admitting that the morbid process is one of lymphatic origin and distribution. Moreover, this supposition is perfectly in accordance with the teaching of general pathology, which tells us with what predilection and frequency syphilis gives rise to lymphatic lesions. Marie brings his paper to a close by saying that "The *initial* lesion of locomotor ataxia is a syphilitic lesion of the posterior spinal lymphatic system."

Before leaving the subject of locomotor ataxia, it may be interesting to state that Crouzon, who made careful statistics of Marie's cases, observed that one out of seven cases was truly a postero-lateral sclerosis; this seems untenable at first, but is easily explained by the fact that very often the "granular bodies" which are the characteristic expression of early degeneration, are so abundant that they mechanically tear the limiting septum between the posterior and the lateral columns, invade the latter, and thus a secondary sclerosis of part of the lateral columns takes place. In such cases the origin and clinical picture are absolutely identical with locomotor ataxia, and the difference is rather one of anatomic interest; yet it must be said that Babinski's extension reflex and a mild paraplegia will make the diagnosis, and in every case which has come to autopsy and in which such a diagnosis had been made in Marie's wards, the anatomic findings have never failed to verify the clinical diagnosis.

The "Cerebral Lacuna"

Another lesion which is of the highest interest is the "Cerebral Lacuna" described for the first time by Marie in 1900. This lesion has been universally recognized as constituting the essence and basis of senile cerebral pathology; it is the cause of those peculiar symptoms so common in the aged, and which resemble dementia so closely; it is the first step towards cerebral hemorrhage.

It presents many stages in its evolution, but for practical purposes, two essential phases may be briefly described: (*a*) a true periarteritis constitutes the first stage. It localizes itself in the uppper third of the pons Varolii, the lenticular nuclei and the optic thalami, more rarely the caudate nuclei. On section the surface presents a series of small elevations, which are the tortuous and thickened blood vessels; these minute and often globular prominences were formerly called "miliary aneurisms;" in reality such anatomic lesions do not exist, and Marie has well shown that so-called miliary aneurisms were the result of improper technique in the examination of cerebral tissue. (*b*)This periarteritis leads to a destructive inflammation of the perivascular tissues, there is actual loss of substance with the ultimate production of small round or oval cavities, the "cerebral lacunæ," which have an average diameter varying from one to four millimetres.

Even if the lesion go no further, there is a secondary degeneration of the motor tracts, and clinically we have such symptoms as temporary hemiplegias, dysphagia, psychic disturbances, hallucinations, emotional outbreaks, spasmodic laughter, crying, etc. The gait is the most characteristic feature, the patients take extremely small steps and it is a laborious task for them to turn around. These are the cases which have furnished the long descriptions of "Degeneration of the Pyramidal Tracts without Cerebral Lesion." If the lesion progress still further, the artery being weakened and having lost its support, ruptures under the circumstances peculiar to cerebral hemorrhage, and we have the familiar clinical picture which requires no description here.

The Peroneal Type of Family Amyotrophy

A disease which is quite rare, but concerning the pathology of which there seems to be much discussion, especially in England and America, is "Peroneal Type of Family Amyotrophy." This affection is usually classed among the muscular dystrophies. In France and Germany, the disease is known as "Amyotrophie Charcot-Marie." It is a spinal cord disease, and in the fair number of autopsies which have been made, there has been found a constant degeneration of the multipolar nerve cells in the anterior horns, especially marked in the cervical and lumbar enlargements, as well as a degenerative sclerosis of the posterior columns. Yet we know that sensory disturbances do not occur in this disease, and such a contradiction is hard to explain, but in the presence of pathologic evidence, there is no room for doubt—it is simply one more proof that in spite of our wonderfully advanced knowledge of cerebral and spinal localization the last word has not been spoken and much yet remains to be demonstrated in the field of nervous anatomy and physiology.

Lumbar Puncture

By far the most fascinating question relative to neurology, however, is that of "Lumbar Puncture," a little operation which, if done aseptically and in accordance with the classical technique, is absolutely harmless. It is unnecessary to discuss the various steps of the procedure; we shall only study its therapeutic and diagnostic value. As to its therapeutic effect, it is now universally recognized that in certain forms of acute meningitis, in uraemia, and in the headache of secondary syphilis, it causes great relief; but it is especially as a means of neurologic diagnosis, that lumbar puncture is of the greatest importance. Much has been said about the macroscopic examination of cerebro-spinal fluid, but the findings are rather vague and uncertain; however, it may be interesting to describe some of the more important changes. Normally, the liquid is as clear as crystal, but pathologically it may be hemorrhagic; this hemorrhage may result from the local traumatism occasioned by the puncture, or may be due to an organic hemorrhage within the central nervous system. In a general way it may be said that the tube being allowed to stand a few hours, if the clot at the bottom be dissociated on shaking, it pleads strongly in favor of a true hemorrhage; again it is noticed that on letting the liquid stand, if the hemorrhage be of organic origin, the overlying liquid will have an amber coloration. As a rule Sicard found that fluid tinged with blood due to a hemorrhage had a darker tint than when the blood was due to the operation.

Cryoscopic Analysis

The estimation of the osmotic tension of the cerebro-spinal fluid has also some interest, and may be determined by Cryoscopic Analysis. Cryoscopy shows that the freezing point of blood serum is 0.56° C., while that of normal cerebro-spinal fluid is between 0.72° C. and 0.78° C., thus cerebro-spinal fluid is hypertonic with regard to blood serum. This hypertonicity is inverted in cases of acute meningitis where the cryoscopic point of the fluid varies between 0.50° C. and 0.56° C.; hence cerebro-spinal fluid has become hypertonic with regard to the blood. This hypotonicity confirms the diagnosis of an acute meningitis, but gives no clue as to its nature.

From a chemical standpoint the study of the fluid offers little advantage; nominally there exists a trace of serum-globulin, serum-albumin being absent, but in cases of locomotor ataxia, general paresis, syphilitic meningo-myelitis and hemiplegia, Widal and Sicard have always found the presence of serum-albumin. Fibrin is normally absent, and when a coagulum of fibrin is detected, it is pathological and probably due to an acute meningitis (Widal and Sicard). Bacteriologically, we can recognize the diplococcus of Weichselbaum, the pneumococcus, the streptococcus of Bonome and a variety of other organisms, but the tubercle bacillus usually escapes detection, and to obtain it, we must either make a culture on blood agar (which requires fourteen to twenty-one days), or employ the most obsolete method, which is the intraperitoneal injection of three cubic centimetres of cerebro-spinal fluid into a guinea pig (which requires three weeks); both these methods are hardly suitable for clinical purposes. It is evident that bacteriology enables us to distinguish between tubercular and non-tubercular meningitis and further enables us to subdivide the latter class into its various forms; but it is the cytological study of the cellular elements which will yield the most rapid and practical results. Normally there are no cellular elements in the cerebro-spinal fluid, rarely one or two lymphocytes may be encountered, but in the organic nervous diseases, the cytological picture reveals the most interesting and important information.

Without going into unnecessary details, the following facts may be asserted. (*a*) In tubercular meningitis the cells are almost entirely lymphocytes, a few polymorphonuclear leucocytes may be present, but in this connection it must be remembered that lymphocytes occur in the convalescence of acute non-tubercular meningitis. (*b*) In all other forms of acute meningitis there is usually a well-marked polymorphonuclear leucocytosis which may even render the fluid purulent. (*c*) In general paresis, locomotor ataxia and syphilitic meningo-myelitis, there is an early and well-marked lymphocytosis which is of the utmost diagnostic importance. In secondary and tertiary syphilis, a lymphocytosis indicates involvement of the central nervous system, and in obscure hemiplegias, the presence of lymphocytosis is an almost certain proof of their syphilitic origin. (*d*) In hysteria, neurasthenia, epilepsy, psychoses and dementias, the examination of the cerebro-spinal fluid is negative.

The "Cerebellar Syndrome"

Before terminating this communication, it is desirable to briefly describe Babinski's "Cerebellar Syndrome." It was in 1899 that this author first called attention to certain symptoms which occur only in lesions of the cerebellum and its dependencies, but it is only very recently that these various signs have received a definite interpretation, and that their practical application to clinical study has been recognized. The first of these signs (*a*) is the exaggeration of "Volitional Static Equilibrium," which is the faculty by which a person can maintain an extremity in some fixed position without support; this name is given in contradistinction to "Volitional Kinetic Equilibrium," or the power of keeping one's balance during the ordinary muscular efforts, such as walking, running, etc. Normally, kinetic equilibrium is much easier to realize than static equilibrium, indeed, it is much easier to walk than to remain standing on one leg without swaying from side to side. If a normal individual be asked to lie flat on his back with the legs flexed on the thighs and the thighs flexed on the abdomen, a fair degree of separation being maintained at the knees, it will soon be found that a rapid succession of fascicular contractions will appear at the inner or outer aspect of the thighs, and later oscillations of greater range will become manifest. Babinski found that in cerebellar affections: tumor, multiple sclerosis with predominating cerebellar localizations, etc., although the patient at first and on account of the irregularity of his movements, takes a long time to bring his limbs into the desired position, yet once in place, static equilibrium is maintained with remarkable perfection, without muscular oscillations and for a much longer time than is the case in health; the equilibrium almost amounts to true catalepsy.

The second sign (*b*) is "Asynergy," a term employed to denote impairment or loss of "Synergy," which is the normal function whereby the harmonious association of muscular movements is assured. Babinski found that upon asking cerebellar patients to perform certain muscular acts, there was a dissociation of function, a breaking up of the movement into its elementary component parts; for instance, if a normal individual be asked to lie on his back and flex his lower extremity in such a way as to bring the foot flat upon the ground, he will in one single and uninterrupted muscular effort cause his foot to recede until it assumes the required position. If such a test be tried with a cerebellar patient, he will in the first stage forcibly touch the buttock with the heel, and in the second stage strike the floor with the plantar surface of the foot; there is thus a decomposition of movement, which seems to occur only in lesions of the Cerebellar apparatus. A great many similar tests with the arms and legs, reveal this same phenomenon of dissociation.

The third sign (*c*) is a well marked diminution of "Diadochokinesia."

Babinski applied this term to the normal power of rapidly and alternately bringing a limb into opposite positions, as for instance, the rapid succession of pronation and supination of the hand and forearm. It has been found that in cerebellar affections, the diadochokinetic function is greatly impaired, a decided diminution in rapidity being generally present; sometimes it is impossible for the patient to alternate these movements, even very slowly.

There is yet so little known concerning the physiology and pathology of the cerebellum, that these three signs deserve proper attention and careful study; they exist only in disorders of the cerebellum, and are therefore of the greatest interest and importance, not only from the standpoint of diagnosis, but also from that of localization. LA SALLE ARCHAMBAULT.

HÔTEL PANTHÉON, PARIS,
March 20, 1904.

LETTER FROM GERMANY.

BREMEN, GERMANY, *April 11, 1904.*

To the ANNALS:

Seasickness is not a disease of childhood. Babies and young children are never affected and one of the disadvantages of advancing years is a predisposition to this malady. Malady it is, although considered by those naturally immune or unexposed as a matter for derision or as a disgrace. On the voyage over I had ample opportunity to observe the symptoms in myself and others. Vomiting is not the chief characteristic sign and it is often absent. A severe headache, anorexia, coated tongue, bad taste in mouth and a feeling of general malaise form the symptom-complex. Vomiting comes as a relief and is followed by a temporary abatement of the symptoms.

Many theories as to the causation of this disorder have been advanced. Those who never suffer from it think it due to lack of will power. The latest theory is that an alternating anaemia and hyperaemia of the brain due to the ship's motion produces the unpleasant symptoms. It is no doubt due to a disturbance of the vaso-motor apparatus, which permits some form of auto-intoxication. A "weak" stomach or a rich diet has nothing to do with producing seasickness. Medicines do very little good. Lying flat on the back with the head low gives the most relief. Fresh air is essential. In the majority of cases nature adjusts herself in a few days to the ship's motion and life takes on a rosier hue and one's appetite returns tenfold.

The position of ship's surgeon is rather eagerly sought for by young medical graduates, not in the hope of acquiring medical experience or remuneration, but for the chance it affords to see something of the world. The North German Lloyd officials are very considerate of their surgeons and rarely assign them more than two or three times to ships going to the same port. On the Atlantic service when there are over seven hundred passengers on board two physicians are assigned, and four or five are supplied on the large express steamers. The duties on board ship are not arduous. There is a hospital on all the passenger ships, which is only occasionally occupied. A visit has to be made through the steerage twice a day and the health condition of all on board reported to the captain once a day. The company equips a well stocked pharmacy, which is under the care of the physician, and also supplies him with a full surgical and obstetrical set of instruments. He is given a comfortable stateroom and a seat in the saloon with the first cabin passengers, and on the North German Lloyd line he is not required to wear a uniform—only an officer's cap. He is given twenty-five dollars a trip besides a daily allowance of three glasses of beer and a small bottle of wine. He has to treat, not with wine, but medicines, all the passengers and crew free of charge. The first cabin passengers may pay for his services if they feel so inclined and one ship's doctor says that the Americans are the only people who ever offer to pay. We surely are a generous race.

One duty required by the company is that the doctor instruct the sailors, singly, on the dangers of venereal disease and he must supply each sailor with some bichloride soap, boracic acid ointment and a three per cent. solution of protargol with instructions how to use them as a prophylactic measure. The sailors pay little attention to these instructions and as a consequence the doctor is often called upon to treat urethritis.

Few uninformed people realize the good care and accommodations which the steerage passengers receive. The

Barbarossa has a steerage capacity for two thousand passengers. On boarding the ship each passenger is given a woolen blanket and a tin pail containing a dish for meat and vegetables, a cup for tea, coffee or water, a dish for preserves (compôt) and the main pail is used for soup. Both the blanket and pail belong to the passenger and he takes them away with him on leaving the ship.

The sleeping rooms are on the main deck and the passengers are separated in various groups. The various nationalities are always kept together. The beds are made of iron—double deckers—in groups of forty with aisles between. The floors are kept very clean and well sanded. The mattresses are filled with straw, which is burnt at the end of each voyage and the tick is thoroughly washed. Married families and single women are kept by themselves and their compartment is divided into separate four-berth rooms. A conspicuous poster is hung in this compartment representing a young girl sitting by her trunk on the seashore, weeping, with an inscription warning all unmarried girls not to accept employment from strangers or employment agencies, and if they are in doubt, urging them to speak to the captain. This is timely advice as it was recently shown at a hearing before the Cities Committee in the Assembly that upwards of sixty per cent. of the employment agencies in New York city were used for immoral purposes.

HENRY L. K. SHAW.

Editorial

> The important point in the prevention of the disease is to be careful in the six non-naturals, in eating and drinking, in sleep, exercise, evacuations, passions of the mind, and the use of "open, fresh, kindly air and such as is free from the smoke of coals." He remarks in conclusion about the prophylaxis of consumption: "But, alas! Physicians have very seldom an occasion to give their Advice about preventing this Distemper (when in the beginning perhaps it may be cured as well as other Diseases, although for the most part by neglect it proves fatal) the sick Persons seldom imploying Æsculapius help before the Distemper has run on so far as to be a fatal case, and then they in vain expect Miracles from the Art of Physick, when it is more convenient for them to have the good Counsel of a Minister about the future Salvation of their Souls, and the Advice of a Lawyer about making their last Will."

From "The Phthisiologia of Richard Morton, M. D."
By WILLIAM OSLER, M. D.

The Medical Library and Historical Journal,
January, 1904.

The Albany Hospital Appeal and Report

The Governors of the Hospital have issued each year a leaflet to publish a condensed summary of the work of the Hospital with a financial statement and an appeal to the citizens of Albany for contributions for support and maintenance. In 1903 this publication was enlarged to the dignity of a report, in which were given more elaborate statistical tables and the records of the various departments. It had been a good many years since the issuance of a pamphlet of this kind and the project has met with favor and is now repeated for the fiscal year ending February 29th. The officers were announced in the March ANNALS and the only change since made has been the selection of Mr. Walter Launt Palmer as Treasurer, to fill the vacancy caused by the election of Mr. Knowles to the Vice-Presidency.

The Governors point with pardonable pride to the fact that the need of contributions is not relatively greater than before, although similar institutions in other cities have suffered a lack of funds and have been seriously embarrassed. At the same time the work is growing in extent. The Ambulance Building has been completed and is in operation. Pavilion F has been enlarged to nearly double its original capacity, and the new pavilion for contagious diseases will soon be ready for occupation. The pressure from these extensions is naturally felt in all departments of the Hospital. Accommodations are required for additional nurses and the power plant has been extended. Fortunately the pavilion plan permits expansion and the embarrassment which often attends the development of completed institutions will not be felt as far as the architectural design is concerned.

The financial statement of the Hospital shows the present value of the property to be $328,511.42. The cost of maintenance for the year was $93,347.74. The various endowment funds aggregate $231,715.40.

The total number of patients treated during the year in the Hospital was 2,630, and in the out-patient department there were 2,890 visits by patients for advice and medicines. Of the cases in the hospital, 1,576 were surgical, and 1,323 operations were performed. Thirty-two patients were admitted to the maternity department; 634 to the medical department, not including 171 mental cases treated in Pavilion F. In the gynecological department seventy-one cases were treated. There are also given the reports of Pavilion F, which is reprinted in this issue of the ANNALS; of the Pathologist and of the Training School for Nurses.

This statement of the work of the Albany Hospital is gratifying and encouraging; gratifying because of the energy and success of its daily work, and encouraging because of the progress toward perfection. With the completion of the pavilion for contagious diseases it will be possible to receive any case of acute disease applying for relief, with the exception of small-pox, for which other provision has been made by the city. We know of no American hospital which has made more liberal interpretation of its benevolent purpose.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF PUBLIC SAFETY—BUREAU OF HEALTH

CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, MARCH, 1904

Deaths

	1901	1902	1903	1904
Consumption	28	18	17	24
Typhoid Fever	1	2	1	1
Measles	1	0	0	0
Scarlet Fever	0	0	2	2
Whooping-cough	0	0	6	1
Diphtheria and Croup	2	1	2	0
Grippe	11	1	6	5
Pneumonia	18	17	14	16
Broncho-pneumonia	9	1	4	6
Bright's Disease	9	12	20	27
Apoplexy	11	8	11	10
Cancer	8	11	6	4
Accidents and Violence	10	6	11	3
Seventy years and over	21	22	39	53
One year and under	27	7	20	29
Total deaths	164	120	175	212
Death rate	19.32	14.12	20.59	24.85

Deaths in Institutions

Albany Hospital	9	10	16	17
Albany Orphan Asylum	2	0	2	0
Child's Hospital	1	3	1	2
County House	3	4	4	7
Dominican Convent	0	1	1	0
Home for Aged Men	0	0	2	4
Home for Friendless	0	2	0	1
Homeopathic Hospital	3	0	3	3
Hospital for Incurables	1	1	1	1
House of Good Shepherd	1	1	0	0
House of Shelter	0	1	0	0
Little Sisters of the Poor	2	1	2	4
Penitentiary	0	1	0	0
Public Places	0	4	2	0
St. Margaret's House	2	1	0	1
St. Peter's Hospital	3	6	5	6
St. Vincent's Female Orphan Asylum	0	0	0	1

Marriages		30
Births		170
At term	162	
Premature	4	
Still	4	

WORK OF HEALTH PHYSICIANS

Total number of assignments made	107
Total number of calls made	490

MARKETS AND MILK

In the Bureau of Markets and Milk there were 138 inspections made, of which three were of slaughter houses, two of rendering establishments, four of hide houses, 84 of markets, twelve of commission houses and thirty-three of milk men. Nine milk samples were taken and 18 tests were made.

RESULT OF MILK TESTS

Specimen	Temperature	Sp. Gravity	Corrected Sp. Gravity at 60°	Per cent. Fat	Total Solids
1	42°	1.030	1.028	3.8	11.8
2	42°	1.027	1.025	3.2	10.4
3	60°	1.030	1.030	3.8	12.2
4	58°	1.027	1.026	3.2	10.7
5	48°	....	....	3.2	...
6	66°	....	....	3.2	...
7	48°	....	....	3.8	...
8	67°	1.032	1.033	3.2	12.3
9	67°	1.032	1.033	3.2	12.3

PLUMBING

In the Bureau of Plumbing, Draining and Ventilation there were 107 inspections made, of which sixty were of old buildings and forty-seven of new buildings. Inspections were made of twenty-six iron drains, one laid, nine connections street sewers, twelve cesspools, forty-two wash basins, fifty-three sinks, thirty-seven bath tubs, twenty wash trays, sixty-eight tank closets. There were 115 permits issued, of which ninety-six were for plumbing purposes and nineteen for building purposes. Eleven houses were tested on complaints, thirty-five houses were examined on complaint and forty were re-examined and twelve complaints were found to be valid and twenty-three without cause.

SANITATION

In the Bureau of Sanitation there were thirty-five complaints made of which three were of privies, six of closets, two of drains, eleven of plumbing, three of water, one of filthy yards, one filthy premises, two of gas, one manure, three of garbage, two dumps. There were fifty-four inspections made and forty-seven reinspections. Six nuisances were found to have been made without cause, five were found abated on reinspection and one cleaned. Two cases were referred to the Commissioner of Public Safety and one hearing was held.

CONTAGIOUS DISEASES

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	9	5	5	12
Scarlet Fever	7	11	13	29
Diphtheria and Croup	56	8	11	13
Chickenpox	6	9	11	6
Measles	38	11	22	32
Whooping-cough	0	0	0	0
Consumption	1	4	4	0

Fumigations:
Houses.................... 38 Rooms.................... 94
Number of days quarantine for diphtheria:
Longest....... 30 Shortest....... 7 Average....... 19 4-5
Number of days quarantine for scarlet fever:
Longest....... 39 Shortest....... 10 Average....... 22 5-7

ANTITOXIN

Cases of diphtheria reported	13
Cases of diphtheria in which antitoxin was used	10
Cases in which antitoxin was not used	3

BENDER LABORATORY REPORT

Cultures for Diphtheria

Initial positive	Initial negative	Release positive	Release negative
10	46	14	21

Total........................... 91

Examination for Tuberculosis

Positive	Negative
1	5

The forty-six negative initial cultures include twenty-seven cultures from well children in the Albany Orphan Asylum.

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Medical Society of the County of Albany was held in Alumni Hall on Wednesday evening, April 13, 1904. President C. S. Merrill called the meeting to order at 9 P. M. There were present Dr. C. S. Merrill, president; Dr. E. E. Hinman, acting as secretary in the absence of Dr. Shaw, and Drs. A. Vander Veer, E. A. Vander Veer, Archambault, Macdonald, Craig, Ryan, Lomax, Sweet, Wiltse, Curtis, Moore, Cook, Happel and Montmarquet.

The minutes of the previous regular meeting were adopted as printed in the ANNALS.

The following applications for membership were read and referred to the Board of Censors: James N. Vander Veer, J. A. Cox, A. J. Bedell and J. H. Gutmann.

Dr. ALBERT VANDER VEER called attention to the portrait of the late Dr. Joseph Lewi which is hung on the wall of Alumni Hall, a gift from Mrs. Lewi, and moved that a vote of thanks be tendered Mrs. Lewi and that the Secretary be directed to transmit the same to her. The motion was unanimously carried.

The business of the society having been transacted the first paper of the evening, entitled "Report of a Case of Ruptured Intestines with Artificial Anus, Fecal Fistula and Opening through the Scrotum," was read by Dr. E. A. VANDER VEER.

During the discussion of this paper Dr. MACDONALD took occasion to congratulate the author upon his successful management of so serious a case, calling especial attention to the fact that in a very large percentage of such injuries there are but few external signs. He also recalled an effort which he had made a few years ago to collect, from a large number of similar cases, a symptom-complex which would make the diagnosis of such injuries easier. The important lesson to be learned from such a case is to withhold anodynes until the diagnosis is made, then the induction of rapid anesthesia tends to relieve the condition of shock that is always present.

Dr. ALBERT VANDER VEER endorsed the suggestions of Dr. Macdonald and recalled a long experience of his own in this class of cases, emphasizing the importance of an early diagnosis without anodynes, followed by a very prompt exploration with whatever surgical intervention was found to be necessary to repair the injured intestine. Attention was also again called to the fact that the external appearances do not indicate the great severity of the injuries.

The second paper was read by Dr. J. L. ARCHAMBAULT, of Cohoes, N. Y., and entitled "Congenital Atresia in Upper Third of Small Intestine; Rudimentary State of the Whole Intestinal Tract Below; Presentation of Anatomical Specimen."

Dr. CRAIG, in discussing this paper, stated that from the standpoint of an anatomist it was a very unusual case and an extremely important one. He advanced the suggestion that the atresia and lack of development of the intestine in this case were very possibly due to a mechanical constriction, an actual cutting off of the intestine by a band of tissue most probably derived from the subperitoneal tissue. Dr. Craig expressed the hope that the case would be duly published and would be accompanied by photographs of the intestines as exhibited, which suggestion was heartily seconded by Dr. Macdonald.

On motion the Society adjourned.

E. E. HINMAN, *Secretary.*

C. S. MERRILL, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

ASSOCIATION OF THE ALUMNI, ALBANY MEDICAL COLLEGE.—The thirty-first annual meeting of the Alumni Association will be held on May 3, 1904. A special effort is being made to have this an especially interesting time. The decennial classes '44, '54, '64, '74, '84 and '94 will be reported upon by the historian and many of the classes named will hold reunions immediately after the general meeting. The annual dinner will be held in the evening at the Hotel Ten Eyck. The commencement exercises will be held in Odd Fellows' Hall, at 3 P. M., President Henry Hopkins, D. D., of Williams College, making the address.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR MARCH, 1904.—Number of new cases, 94. *Classification of cases:* Dispensary patient receiving home care, 1; district cases reported by health physicians, 15; charity cases reported by other physicians, 50; moderate income patients, 28; old cases still under treatment, 42; total number of patients under nursing care, 136. *Classification of diseases (new cases):* Medical, 31; Surgical, 7; obstetrical, mothers, 34, and infants, 25; dental, 1. Transferred to hospitals, 6; deaths, 10.

Special Obstetrical Department.—Number of obstetricians in charge of class, 4; attending obstetricians, 3; number of students in attendance, 15; Guild nurses, 8; patients, 15. Number of visits by head obstetrician, 20;

by attending obstetricians, 17; by medical students, 121; by Guild nurses, 139. *Visits of Guild Nurses (all departments):* Number of visits with nursing treatment, 859; for supervision of canvalescents, 219; total for month, 1078. Four graduate nurses, one emergency nurse, and two assistant nurses on duty. Cases were reported to the Guild by the city physician, by the five health physicians, and by thirty other physicians.

Medical Society of the County of Albany.—The next regular meeting of the Medical Society of the County of Albany will be held in Alumni Hall, on Tuesday evening, May 10, 1904. At this time Dr. Merrill's presidential address will be delivered and the election of officers for the ensuing year, of new members and of delegates to the State Society, will be held.

Annual Report of Albany Hospital.—The annual report of the Albany Hospital has just been published. The report shows that the total expenditure for the erection of buildings, exclusive of those erected by the city or county, is $328,551, leaving a total debt now upon the institution of $24,480. The total number of patients treated were 2,630, and 3,551 prescriptions were made up and given away to needy patients. There were 171 patients treated in Pavilion F, of whom 157 were discharged as cured. The training school for nurses consists of about eighty members and is still without lecture, class and linen rooms and the dining room space is entirely inadequate. In the last supply bill passed by the legislature $2,000 was allotted for the maintenance and medical care by the Albany Hospital of such officers, members and employees of the several branches, departments and bureaus of the state government located in Albany, as may be injured or become sick, while in the performance of their duties, said persons to be admitted upon the certificate of the trustees of public buildings through the superintendent of public buildings, after a proper certificate of disability signed by a member of the attending staff of the Albany Hospital, who shall be designated by him, shall have been filed with said superintendent.

Scarcity of Dissecting Material in Scotland.—Owing to the refusal of the authorities to obey the Anatomy Act, directing the poor authorities to forward to the medical schools all unclaimed pauper dead, the corpse market is just now suffering. Under ordinary circumstances bodies can be obtained for $2.50, but at the present time medical schools are paying as high as $50.00 apiece.

Yellow Fever in the United States and Mexico.—Within the last few weeks the Superior Board of Health of Mexico and the Surgeon-General of the United States have been acting in unison to perfect such a system of supervision over sanitary matters as shall enable them to prevent any further spread of yellow fever. Various methods of quarantine, disinfection and prevention have been arranged, including the stationing of officers of both departments wherever the disease shows itself.

American Academy of Medicine.—The twenty-ninth annual meeting of the American Academy of Medicine will be held at Atlantic City, beginning on Saturday, June 4th and continuing through the 6th. A very interesting and valuable program is promised. The headquarters will be at the Shelburne House.

Enuresis.—We are in receipt of a reprint from *American Medicine* of a paper on Enuresis by Dr. George E. Beilby, of Rochester, N. Y., which was read before the last meeting of the Medical Society of the State of New York. Dr. Beilby graduated from the Albany Medical College in 1899.

State Nurses' Association.—The annual meeting of this association was held in the City Hall, Albany, N. Y., April 19, 1904. The report of the president showed that the work of the association during the past year had done much to place the nursing profession on a much higher basis than it had ever occupied hitherto. After listening to the reports of the officers and committees the following officers were elected for the ensuing term. President, Miss Anna Damer, of Buffalo; vice-president, Mrs. N. J. Ledlie, of Saratoga; secretary, Miss Margaret Sutherland, of New York; treasurer, Miss J. A. Silver, of New York.

Personal.—Dr. Robert E. Doran (A. M. C., '93), has been transferred from the Craig Colony for Epileptics to Willard State Hospital, where he is now first assistant physician.

—Dr. George H. Beebe (A. M. C., '94), is located in Pittsfield, Mass.

—Dr. H. W. Briggs (A. M. C., '94), is located at 1026 Jackson Street, Wilmington, Del.

—Dr. Stephen M. Long (A. M. C., '94), is practicing in Fort Duchesne, Utah.

—Dr. Thomas C. Sawyer (A. M. C., '94), is in practice in Auburn, N. Y.

—Dr. Arthur J. Capron (A. M. C., '94), is now connected with the Long Island State Hospital, Brooklyn, N. Y.

—Dr. Charles A. Skelton (A. M. C., '98), has opened his offices at No. 397 Friendship Street, Providence, R. I.

—Dr. William J. Swart (A. M. C., '98), who has been serving as a medical missionary in Siam for the past few years, writes from Nakawn Sri Tamarat, under date of January 23rd, that he will be glad to have his mailing address changed to Mariaville, N. Y., and we assume that he is returning to this country.

—Dr. Edward L. Hanes (A. M. C., '99), has been promoted from junior physician at the Hudson River State Hospital to assistant physician at the Rochester State Hospital.

—Dr. Arthur J. Bedell (A. M. C., '01), after spending two years as resident physician in the Wills Eye Hospital in Philadelphia, Pa., has opened his offices for practice at No. 48 Dove Street, Albany, N. Y. Dr. Bedell will make ophthalmology a specialty.

—Dr. Russell Clute (A. M. C., '03), has resigned his position as medical interne at Manhattan State Hospital to accept a position in a general hospital.

Married.—La Moure-Salisbury.—Dr. Howard A. La Moure (A. M. C., 1900), who is living in Faribault, Minn., where he is assistant physician at the School for Feeble-Minded, was married at Middletown, N. Y., April 5, 1904, to Miss Ina M. Salisbury, of Canandaigua, N. Y.

Book Reviews

Die Vererbung der Syphilis. RUDOLF MATZENAUER. *Erganzungsheft zum "Archiv für Dermatologie und Syphilis," June, 1903.*

The writer divides his article into four parts:

1. Introduction—discussing the present teachings on hereditary syphilis.
2. Inheritance from the mother.
3. Inheritance by germinal infection.
4. Immunity.

The chief points in his arguments are embodied in the final summary and are given in full.

I. Syphilis inherited from the mother is caused by intra-uterine infection of the foetus.
  A. Post-conceptional syphilis, acquired *intra-graviditatem,* can be transmitted to the foetus only through the placenta.
    1. Analogy with other infectious diseases (Typhoid, Tuberculosis, Cholera, Anthrax, etc.).
    2. Numerous observations in syphilis itself
      (a) From the cases so far published, it cannot be proven that syphilis acquired within the last two months of pregnancy, is transmissible to the foetus.
      (b) The intensity of foetal syphilis is greater the earlier in pregnancy the infection of the mother takes place.
      (c). Intra-uterine transmission of syphilis from mother to foetus is facultative, not obligative.
  B. Germinal transmission by an infected ovum has not been proven.
  C. We can therefore assume that syphilis inherited from a mother, syphilitic before conception, occurs only by intra-uterine infection.
    The transmission of bacteria from mother to child presupposes a pathological condition of the placenta.
    1. The intensity of the placental lesions does not necessarily correspond to the intensity of the maternal or foetal syphilis. Changes in the blood vessels are alone necessary.
    2. Twins, one healthy, the other diseased, the placentæ are respectively normal and pathological.
    3. No conclusions can be drawn from the location of the placental lesions (foetal or maternal), as to the source of the infection (paternal or maternal.)
    4. In cases of apparently pure paternal inheritance the maternal portion of the placenta shows lesions of syphilis, in spite of the apparent health of the mother.
  D. The inheritance of pre-conceptional syphilis through the placenta is facultative not obligative. (Twins, one healthy, other syphilitic.)
  E. The intensity of the disease in the foetus does not always correspond to the intensity of the disease in the mother.
    Variations in the intensity of the maternal and foetal disease are explained by:
    1. Variations in the resistance of the maternal and foetal organisms.

2. The intensity of foetal syphilis furthermore depends upon the time during pregnancy in which, as a result of placental lesions, the organisms pass from mother to foetus. In general it is greater, the earlier the infection of the foetus.

F. The diminished intensity of hereditary syphilis can not be explained by the duration or diminished intensity of the maternal disease with the consequent attenuation of the virulence of the organisms. Or in other words because the bacteria have become attenuated by reason of long habitat in the maternal organism they develop diminished virulence in the foetus. The gradual attenuation of hereditary syphilis depends rather upon the relatively later, slower and less frequent involvement of the placenta in old and consequently attenuated cases of maternal syphilis.

G. Alternating inheritance.

Birth of a healthy child between two syphilitic children.

II. Paternal Inheritance

Has not been proven. Germinal inheritance of syphilis by an infected spermatozoon or ovum (inheritance in the true sense) has not been proven.

Arguments for and against paternal inheritance:

FOR	AGAINST
Analogy with other diseases. Congenital malformations. Anomalies of individual organs and physiological peculiarities can be inherited from father.	Analogy with other infectious diseases. There is no infectious disease which is inherited from the spermatic fluid. (Not even Pebrine of silk worms, tuberculosis or leprosy in which the organisms of the disease have been found in the spermatic fluid, not, however, in the spermatozoa themselves.)
	The spermatic fluid of a person with syphilis is not infectious.
Hereditary and acquired syphilis are not identical.	Hereditary and acquired syphilis are identical.
The male in the majority of marriages is the syphilitic factor.	There are many more syphilitic fathers than syphilitic children. Paternal syphilis alone without proof that the mother is free from the disease is no proof that the foetal syphilis is paternal in origin. The birth of healthy children from fathers with recent syphilitic infection can occur only when mother is free from the disease. Cases of paternal syphilis become less frequent with the increasing precision of observation and wider knowledge of the appearances of the disease.
The long duration and at the time of marriage either latent or non-infecting lesions of syphilis in the male. (Kassowitz.)	Transmission of syphilis of long duration, from man to woman by contact is as plausible as a paternal inheritance after the same lapse of time.

FOR	AGAINST
Birth of a syphilitic and viable child at term is against a recent (1-2 yrs.) untreated syphilis of the parents.	Inheritance is not obligative, but facultative. The intensity of the inherited disease does not always correspond to the intensity or duration of the maternal disease.
The birth of healthy children after the paternal disease has been successfully treated (Kassowitz.) Women whose husbands are syphilitic can bear healthy children without themselves being infected. With a second healthy husband can also bear healthy children.	Opposing observations that an apparently healthy woman can bear syphilitic children not only from a first syphilitic but from a second and third healthy husband.
Exclusive treatment of father infected with syphilis is the best means of insuring healthy offspring.	Over-valuation of the mercurial treatment. Disease no longer capable of transmission. Alternating inheritance.
Twins, one healthy, the other syphilitic (Kassowitz).	Explained by two placentæ. Examination of placenta in cases of apparent paternal inheritance shows lesions in placenta materna.

III. The mother of every syphilitic child, although apparently healthy, is syphilitic.

A. The absence of demonstrable past or existing symptoms of syphilis is not sufficient to exclude former infection. The primary scleroses and manifestations often escape observation.

1. Observations of family physicians, gynecologists and pediatrists on the question; Can a mother free from syphilis bear a syphilitic child?
2. Method and time of observation. Kassowitz investigated his cases for the first time, one or more years after the infection had apparently taken place and made no examination of the genital organs.
3. Kassowitz interpreted the absence of symptoms in long standing cases of syphilis in various ways.

   In *choc en retour* and *tertiarisme d'emblée* the past symptoms had been overlooked. Absence of symptoms, in mothers of syphilitic children, was an indication of their freedom from the disease.
4. Twenty-thirtyeighths per cent. of mothers of syphilitic children are healthy.

   In 30-40 per cent. of the cases with undoubted tertiary lesions evidence of past infection is not obtainable.

   In about the same percentage of mothers with congenital syphilitic offspring we would expect to fail in proving the existence of past lesions of syphilis.
5. Syphilis in the mother, although latent and showing no symptoms, exacerbates with the birth of a syphilitic child.

B. There is no precocious, conceptional syphilis (*Choc en retour.*)

Symptoms of secondary syphilis with no primary sclerosis are not to be explained by intra-uterine infection of the mother from the foetus. The primary sclerosis was probably overlooked.

The foetus is syphilitic, not from spermatic infection *ex patre,* but from the disease existing in the mother before pregnancy.

Choc en retour (32%) and apparent paternal inheritance (38%) nearly agree in frequency, hence in most all cases of apparent paternal inheritance the mother shows symptoms of syphilis.

C. There is no late conceptional syphilis and no *tertiarisme d' emblée.*

The apparent frequency of such cases proves again that the mother has latent syphilis.

D. There are no exceptions to Colles' Law.

All cases so far published as such are easily explained. Every mother of syphilitic offspring is without exception immune.

IV. An inheritance of immunity to syphilis has not been proved.

The "Toxine Theory" of Finger, until the present time accepted, is not correct.

A. In other infectious diseases immunity is not transmitted either through the spermatozoa or ova.

There is no germinal inheritance of immunity, (inheritance in the true sense) any more than there is a germinal infection.

B. In other infectious diseases the inheritance of immunity from the mother takes place through the placenta.

Children, from syphilitic fathers and healthy mothers, who are healthy but not immune, are not exceptions to Profeta's law.

C. Profeta's law has not been proved.

Against Profeta's law:

1. Undoubted published exceptions (16).
2. Observations of syphilis acquired in childhood in localities where the disease is endemic.

D. Inherited immunity in other diseases is not lasting or active, but is always transitory or passive (of few weeks duration).

E. An immunity in every infectious disease is not inherited.

The antitoxine passing from mother to child does not cause a reaction of equal intensity in the latter, hence has not the same effect (Tuberculosis).

F. The antitoxine of syphilis passing from mother to child is too weak to cause anything but a transitory immunity (Analogy with variola, leprosy [?] and tuberculosis).

Profeta's law is not tenable.

Since a lasting immunity cannot be inherited, and since every mother of a syphilitic child, although apparently healthy, has without exception an enduring immunity, it follows that the mother in every case has latent syphilis.

Since finally there is no hereditary syphilis without syphilis in the mother, and since the disease can, without doubt, be inherited from the mother it follows that in every case we can trace the infection to the mother and the hypothesis of a paternal inheritance is not necessary. H. W. C.

Biographic Clinics. Volume II. By GEORGE M. GOULD, M. D. P. Blakiston's Son & Company, Philadelphia. Pa., 1904.

This volume is a continuation of the biographic studies published by Dr. Gould a year ago. It contains studies of the lives of George Eliot, George Henry Lewes, Wagner, Parkman, Jane Welch, Carlyle, Spencer, Whittier, Margaret Fuller, Ossoli, and Nietzsche. Besides these studies it contains a chapter on eyestrain and the literary life, and a chapter on eyestrain and civilization. The method of study is the same used in the previous studies, *i. e.,* statements bearing on the illnesses of the individuals in question are collected from their biographies, or from surviving friends, and conclusions are drawn from these statements. As in the previous series Dr. Gould's conclusion is that eyestrain was at the bottom of the troubles of all the individuals cited. Our criticism of the last volume applies with equal force to this one. One feels throughout that Dr. Gould is forcing his case, and that the observations are often interpreted to suit Dr. Gould's theories. It is probable that Dr. Gould's style exaggerates these defects, for he writes with the irritating assurance of the cocksure which is so characteristic of reformers, and which does so much to harm their cause. We must repeat what we said in our criticism of the last volume that while undoubtedly eyestrain had something to do with the poor health of the individuals studied in this series, it is extremely unlikely that it played the all-important role ascribed to it by Dr. Gould. If Dr. Gould desires to instruct the medical profession on the subject of eyestrain, and this seems to be his object, we would suggest that he write a book on the subject based on the observation of living subjects. The biographic clinic is undoubtedly interesting from a literary and also from a medical standpoint, but as a method of imparting instruction it is not to be commended. It is like studying the structure of a ship through a telescope when there are opportunities to go to a shipyard and see one built. Admirers of the immortal Sherlock Holmes will remember that on one occasion his friend Dr. Watson wished him to draw conclusions regarding a certain case from the newspaper accounts, but Holmes refused on the ground that in order to draw deductions one must observe the facts and not rely on mere written records. Dr. Gould is trying to found his thesis on written records when he has plenty of facts at his elbow. We advise him to try the facts next time.

G. B.

The Self-Cure of Consumption without Medicine. By CHAS. H. STANLEY DAVIS, M. D., Ph. D. New York: E. B. Treat & Co., 1904.

This book is one of that constantly increasing type of books, half technical, half popular, upon the "great white plague" that have been appearing in growing numbers for some years past. It is a question whether the subject of tuberculosis has not been over-popularized. The fifteen chapters consider the fatality, cause, heredity, symptoms and diagnosis, treatment with drugs, diet, etc., of the disease. The author seems to unqualifiedly admit that the German maxim "Jederman hat am Ende ein bischen Tuberculose" has a deep basis of fact. He also condemns most heartily the use of tuberculin for the purpose of diagnosis but in the same chapter makes a very necessary plea for the more extensive use of the microscope by the general practitioner. A little further on he deplores, it seems rightly, the frequent deception of the patient and his friends by the attending physician calling the trouble "weakness of the lungs" until the hopeful period of treatment has passed. An admonition is placed against the routine treatment of consumption with drugs internally although the author counsels the use of inhalations. Much space is devoted to the subject of diet and one of the sanest things in the book is the warning against the indiscriminate stuffing of the patient which seems to hold an eminent place in the therapeusis of many. Among the last chapters the author considers briefly the subjects of cough and hemorrhage in tuberculosis and rightly calls attention to the uselessness if not danger in the employment of ergot in the latter condition. The book concludes with two appendices; one on the prevention of consumption and other diseases and the other a table of the comparative nutritive value of foods.

The only pregnant criticism that may be offered is that like all works intended for both profession and laity, it is too elementary to be of service to the one, and almost too technical to be of value to the other. The typography, paper and binding are all that could be desired. J. F. R.

Plain Hints for Busy Mothers. By Marianna Wheeler. New York: E. B. Treat & Co., 1903.

This unpretentious little work by a trained nurse is intended mainly for mothers of the so-called "submerged classes" and contains much that can be commended and a little that can not. The book is written in easily comprehended English and contains instructions for feeding, bathing, amusing, clothing and otherwise caring for the young infant. The chapter on feeding is the only one to which exception may be taken, in that it advises extremely low dilutions of cow's milk, unmodified, as a substitute for nursing. The dilutions advised would give practically normal proteids but the sugar- and fat-content of the mixture would be very much below proper proportions. One of the few chapters on the common illnesses and emergencies of the household, that in which the mother is advised that medicines for cough in young children are generally useless and simply result in disturbing digestion, and recommending instead the use of warm moist inhalations with the application to the chest of hot oil, might well be followed, it seems, by many medical men. The book is cheap, well printed, readable and not technical. J. F. R.

Radium, and Other Radio-Active Substances with a Consideration of Phosphorescent and Fluorescent Substances, the Properties and Applications of Selenium and the Treatment of Disease by the Ultra-violet Light. By William J. Hammer, Consulting Electrical Engineer. New York: D. Van Nostrand Company, 1903.

This is claimed to be the first book on Radium. It seems to consist of the stenographic report of what must have been an interesting lecture, printed without revision of any kind and is abundantly and well illustrated. The constant recurrence of such expressions as "I have here," "your attention this evening," and others of a like character is unpleasant, but, altogether, the book is well worth reading, now when radium is occupying the center of the stage, among current scientific sensations, for which the world seems to hunger constantly.

Radium is a new element, discovered in 1896 by Professor Pierre and Madame Curie, at Paris, in pitchblende, the principal ore of uranium.

Pitchblende is a complex mineral of variable composition and contains an almost infinitesimal amount of radium. This is the only occurrence of the new element known at present, which, with the difficulty of extracting it, renders the cost very high. Radium is obtained as the soluble chloride or bromide, or the insoluble carbonate, each compound being mixed with more or less of the corresponding barium salt. The properties of radium are very different from those of other elements and may cause us to modify some of our well accepted theories in physical science. Among other striking properties it has the power of spontaneously and continuously emitting energy in the form of heat and rays of various kinds, being the most active member of a new group of so-called "radio-active" substances. The rays, themselves, seem to be invisible, but are capable of causing other bodies to luminesce. They can penetrate all things to a greater or less degree and affect the photographic plate. They have caused lesions on the human body, which were very slow to heal; have killed small animals, and have powerful germicidal power. It is thought that this last property may be made use of in the treatment of cancer, tuberculosis and other diseases. Many very sensational uses of radium have been predicted, but these are mostly imaginings of reporters.

The last portion of the book is devoted to an interesting illustrated description of the Finsen light cure which has been successful in the treatment of lupus. T. J. B.

L'Entéro-Côlite Muco-Membraneuse. Par le DOCTEUR FROUSSARD. Paris: A. Maloine, 1904.

This little monograph of one hundred pages is devoted to the consideration of the malady which has usually been described in works in the English language as mucous colitis. The subject is taken up in a systematic way, the author considering the etiology, symptomatology, complications, pathological anatomy, pathogenesis, diagnosis, and treatment in different chapters. In each chapter the subject matter is treated succinctly, and stress is laid on known facts rather than on the various theories to which the study of this disease has given rise. The author considers the cardinal signs of the disease to be three: abdominal pain, constipation, and the passage of mucus in the stools. He inclines to the belief that the condition is primarily a nervous one, atony of the intestine being the primary lesion, and the other symptoms following as a result of this. His treatment is mainly along hygienic and dietetic lines, and he pins but little faith on drugs except purgatives. The disease is one which is probably rather common, and one which has received but little attention in this country. We can heartily recommend this little volume to those who wish to obtain a succinct account of this disease. G. B.

Biographie scientifique. J. B. BAILLIERE et Fils. Paris, 1904.

This is a catalogue of scientific works in general, including medical works, published by the well-known house of Baillière. The catalogue is arranged alphabetically according to authors, and an index of subjects at the end allows of ready reference to any subject which may be desired. The subjects covered by the catalogue are human and veterinary medicine, chemistry, physics, natural history, agriculture, technology, and industrial subjects. Over fifteen hundred subjects are listed; the size, date and price of each volume being given. The catalogue should be useful to those who are interested in medical literature. G. B.

Current Medical Literature

MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

The Present Status of the Dunbar Hay Fever Therapy.

BAILEY. *The Laryngoscope, December, 1903.*

The writer mentions: (1) a neurotic predisposition, (2) a local lesion, and (3) an exciting cause, as including the possible etiological factors of hay fever. Under the first, may be classed idiosyncrasy, vaso-motor derangements, and heredity; under the second, lowered vitality, either local or general, the former including spurs, deflections, hypertrophies, and all local malformations, the latter, constitutional affections; while the third mentioned cause, by elaborate and ingenious experiments has been proved to be the pollen of flowering plants. With a determination to establish beyond a doubt the true cause of hay fever, Professor W. P. Dunbar, of Hamburg, who had for years been investigating hay fever, instituted and personally conducted an elaborate series of experiments. By his investigations, he had learned that *each* hay fever patient exhibited a marked susceptibility to the pollen of certain plants, while that of other plants had no effect whatever; that those hay fever patients were sensitive to the poison at all seasons of the year; that not only were they susceptible when the pollen was brought into contact with the nasal mucosa, but that the rectal and urethral mucosa as well, reacted to the poison. He also determined that the active principle of the pollen producing an acctack, is soluble in the normal alkaline secretions.

In his clinical laboratory, Prof. Dunbar succeeded in separating from the pollen, (*a*) a starchy body, and (*b*) an ethereal oleaginous substance, which he isolated in the form of a white powder, and which he believed to be a complex proteid. This toxin he produced by extracting crushed pollen, at 98.4° F., with a saline solution, and adding alcohol, whereupon the toxin is precipitated. Upon applying it to the mucous membrane of the eye and nose of people predisposed to hay fever, he obtained a typical reaction, with all the local symptoms characteristic of hay fever, while by control experiments he demonstrated that the same amount of toxin had no effect at all on subjects *not* predisposed to the disease.

With this important basis of information, Prof. Dunbar injected in gradually increasing doses, the toxines of the various pollens into the circulation of rabbits, goats, and horses, and succeeded in producing an antitoxin, which when applied to the parts that previously had been subjected to the toxin, produced immediate relief of all the symptoms.

Sir Felix Semon, of London, took up the same work with the following conclusions: (1) There can be no doubt, he states, that Dunbar has succeeded in extracting from the pollen of certain grasses, a toxin which, when injected subcutaneously, or instilled in the eyes and nostrils of people predisposed to hay fever, produces the characteristic subjective and objective symptoms of the disease. (2) The toxin when instilled into the eyes and nostrils of the people *not* predisposed produced in most cases no symptoms whatever. (3) The effects of the toxin in people suffering from hay fever, are as varying in intensity as are the attacks of the affection itself, both with regard to the local and constitutional symptoms. (4) Dunbar's antitoxin produces immediate disappearance of the subjective, and after a few minutes, great amelioration of the objective symptoms. (5) The effects of the antitoxin appear in some instances to be sufficient to prevent reappearance of the subjective symptoms, while in others, repeated instillations were necessary to produce ultimately the return to normal conditions. Sir Felix Semon, in closing his discourse, warns the profession against any undue enthusiasm or premature hopes as to the infallibility of this antitoxin, and his view is no doubt in full accord with that of the discoverer. It has not yet been definitely proved whether the serum will arrest or prevent genuine attacks of hay fever, or that the subject can through its application or injection, be temporarily or permanently immunized.

SELECTED FORMULÆ

In putrefactive diarrhœas with abdominal pain:

℞ Tannigen (Merck) ..... ʒj
Bismuthi subgal. .... ʒij
Salol .... gr. xxiv
Ext. opii denarc........ gr. iij
M. et fiat in capsulas No. xij.
Sig. One every three or four hours.
—*Hemmeter.*

Pruritus ani et vulvæ:

℞ Acidi carbolici .... flʒij
Liquor. potassæ .... flʒj
Ol. lini, q. s. ad............ fl℥j
Ol. Andropogon citrati...... M ij
M. Sig. For external application as required.

Anemia of pregnancy with weak heart but no lesion:

℞ Spartein. sulphatis 0.01
Ferri oxalatis 0.10
Extracti gentianæ,
Extracti glycyrrhizæ, āā q. s.
Ft. pil. No i. D. tal. dos. No xxx.
Sig. Take one pill after each meal.
—*Cumston.*

Vertigo in arterio-sclerosis:

℞ Ergotini 0.1
Extracti physostigmatis 0.02
Extracti gentianæ, q. s.
For one pill. One to twenty such daily according to patient's tolerance.
—*Church.*

Ascaris lumbricoides, (child of 3-5):

℞ Santonini ....
Hydrargyri chloridi mitis, āā. griij
Sacchari albi .... q. s.
M. Ft. pulv., div. in chart. No. ij.
Sig. One night and morning.

Or

℞ Santonini 0.2
Olei ricini 70
M. Sig. A teaspoonful every two hours.
—*S. M. Ward.*

Oxyuris vermicularis:

℞ Tanaceti 2.0
Make an infusion with:
Aquæ 200.0
Add:
Glycerin 20.0
Inject after evacuating the bowels.

Or

In obstinate cases,

℞ Santonini pulv. .... ʒi
Resinæ jalapæ .... gr. ij
Cocoæ .... ʒi
M. et div in troch. No xx.

Sig. One in the morning on an empty stomach for an infant of two years; two or three for older children.
—*Guichon.*

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Edited by Miss Ada Bunnell, B. L. S.

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Books added to the New York State Medical Library since October, 1903

(*Continued from Albany Medical Annals, April, 1904, page 388*)

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ALBANY
MEDICAL ANNALS

Original Communications

A REPORT OF THE WORK OF THE SPECIAL OBSTETRICAL DEPARTMENT OF THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.

Read before the Medical Society of the County of Albany, December 9, 1903.

BY H. JUDSON LIPES, M. D.,

Head Obstetrician to the Guild; Lecturer on Obstetrics, Albany Medical College.

Mr. President and Members of the Society:

I have taken this opportunity to present to this society and especially to the physicians of the city a report of the work of the Special Obstetrical Department of the Albany Guild for the Care of the Sick Poor.

Since the program for this evening consists in the presentation of three papers, I will endeavor to make this one as brief as the subject will allow.

At my suggestion, the Special Obstetrical Department of the Guild was organized to provide practical obstetrical experience for the students of the Medical College, and incidentally, to secure better treatment and care for the poorer class of women who are unable to pay a physician's fees for such services, and also, to educate the masses to employ physicians, rather than the uneducated reckless midwives who are so numerous in this city.

It might be proper in the beginning to state, that under no conditions will the Guild accept cases for this department who are able to pay a physician. The majority of the cases that have been attended up to the present time, were of the very poorest class, and would have come legitimately under the care of the health physician. Indeed many of our cases have been referred to us by the various officers of the health department.

My first plan was to arrange an out-door obstetrical service in connection with the City Hospital, but the fact that the Albany Guild for the Care of the Sick Poor was already in the field, and equipped for this very kind of service, led me to present the matter to the president of that corporation, who, after careful consideration, asked me to write her a letter outlining the proposed object and methods. This communication was later approved by the advisory board and executive committee, and made an experimental department of the Guild work. The wisdom of this plan becomes more and more evident, for the work of the Guild properly includes such cases, and its nurses are especially qualified for this out-door work, and are thoroughly in touch with the class of patients we must necessarily draw from. In such organizations as the Lying-in Hospital in New York City the students are sent out on the cases alone. It is doubtful whether this would succeed in Albany, and in fact we believe that the success of this department up to the present time is due largely to the work of the Guild nurses. Knowing that a graduate nurse is in attendance, relieves the patient from the fear of students being present, and besides gives the students much more confidence. The best proof of the success of the work so far as the patients are concerned, is the fact that many of them have either been confined a second time by the department, or have made application for future attendance.

The work is now known as the "Special Obstetrical Department of The Albany Guild for the Care of the Sick Poor," and the Guild has assumed the entire responsibility of its management, and has carried out admirably the plans originally submitted.

At first, the work being experimental, no headquarters could be arranged for where students could remain on duty. The college faculty, appreciating what might be the value of the work, provided a bed in the college library, and placed a telephone in the building, so that students might be called during lecture hours, or at night. The first year, the cases were so infrequent, that it seemed a hardship for students to remain on duty. Possibly the dissecting material which they had so grievously misused, appeared before them in their dreams. At any rate, they were scared out, and it was quite impossible to get them to remain on duty. Thereafter the messenger service was called upon to notify students when they could not be reached by telephone. Later two fraternities connected with the college had telephones put into their chapter houses and this gave a few of the senior students an advantage, since they could be reached easily at night.

According to the rules laid down by the Guild for the first year, it was necessary for the obstetrician in charge, or one of the assistant obstetricians, to be present at every confinement. This would admit of the presence of only one student, and each case seemed merely an observation, and did not as a rule give the student individual responsibility. This has been changed so that now two students and a nurse attend each case, and the attending obstetrician who is on duty is only called when some complication arises, or where a primipara is being confined.

An organization of this kind is necessarily of slow growth, and doubtless we have had the usual number of obstacles to surmount, but the department is now placed on a firm basis, and, thanks to the enthusiasm of the officers and members of the Guild, and the untiring and excellent work of the Guild nurses, we believe that this work will become a permanent feature in the college curriculum, and a lasting benefit to the poor women of the city.

Before the present plans are discussed we will consider the work of the three years since the inception of this department.

During the first year, sixteen cases came under the care of this department, seven of these being abnormal. Of these sixteen cases, over half were referred to us by the physicians of the health department. Twenty-one students were in attendance who made a total of ninety-one calls. The nurses made a total of one hundred and eighty-seven visits. One hundred and nineteen calls were made by the staff of obstetricians.

During the second year there were thirty-one cases cared for, with twenty-two different students in charge, who made a total of one hundred and eighty calls. The nurses made 293 calls and the obstertrician 146 calls.

During the third year we had thirty-nine cases. There were thirty-one different students in charge, a number of these having been in attendance on several cases, making a total of 226 calls. During this year the nurses made 349 calls, and the obstetrician 167 calls. Since the first of October we have had fourteen cases —almost as many as we had our first year, and we still have eight or ten cases on our waiting list.

Therefore, from October 1, 1900, to December 1, 1903, there have been 100 obstetrical cases with 74 different students in attendance, who made a total of 505 calls. The nurses made 829 visits and the obstetricians 432, making a grand total of 1,766 calls by the department in three years.

Besides this eminently practical work done by students in the homes of the patients, cases have through this department been brought before the senior and junior classes in obstetrics and every student has had several opportunities to thoroughly examine a pregnant woman under the instruction of one of the staff. Among the 100 cases up to December 1st, there were twelve cases of premature labor, eight of precipitate labor, two breech presentations, and twins occurred four times, podalic version was performed once for a transverse position and twice for occipito-posterior presentations when this operation rather than forceps was indicated. Forceps were applied in eleven cases; in three instances for prolonged second stage, once for after coming head in a case of premature labor at the seventh month where the midwife in attendance had pulled on the legs until the neck was severed, four times for impacted R. O. P. position, once in eclampsia in a primipara of thirteen years of age; once in a case of chronic arthritis deformans where spontaneous labor seemed impossible, and once in a case of threatened eclampsia, the patient having a justo-minor pelvis.

There were five still born children, not counting those in premature labors, one of them being one of twins. There were two cases of retained placenta necessitating the students calling upon one of the staff. Credé's method in the hands of the obstetrician was sufficient to deliver them. In several cases of premature labor curettage was performed to remove retained secundines.

We have to record one case of post-partum hemorrhage and that occurred in a case of premature labor at seven months and was without doubt due to the fact that the husband of the patient had kicked her in the abdomen and probably loosened the attachment of the placenta. This case should be classified under accidental hemorrhage, however, instead of post-partum hemorrhage. To prevent post-partum hemorrhage all students are instructed, and the nurses see that the rule is carried out, that ergot must be given immediately after the birth of the child, and to keep firm hold upon the uterus for at least one hour after delivery.

We have two cases of eclampsia, one already mentioned in a girl of thirteen where accouchement forcé was done, the mother now living and in good health. Her child died in three or four weeks of malnutrition. This was a case of rape for which the perpetrator was sent up for fourteen years hard labor at Dannemora. The other case of eclampsia occurred in a duopara. The Guild obstetricians were not called in, however, until spontaneous delivery had taken place.

Considering the fact that many of these cases came to us after the midwives' resources had been exhausted, and that often the surroundings were of the dirtiest and most wretched, complications have been conspicuous by their absence.

In one case, phlegmasia alba dolens occurred. This case was of particular interest because of a well developed mammary gland over the right scapular region.

Four or five patients whose environment was such that they could not be attended in their homes, were sent to the City Hospital.

The majority of our patients were multiparæ and therefore lacerations of the perineum were infrequent, occurring in but six cases, and these were repaired.

When it is remembered that all this work has been done largely by the students under the direction of the staff, and with the assistance of the Guild nurses, one should appreciate the fact that the students of the medical college are now for the first time in its history obtaining practical work in the department of obstetrics. At the present time the staff of obstetricians are called upon only when some complication arises, thus throwing greater responsibility upon the students.

Permit me to give as briefly as possible a summary of the present method of conducting the work of the department:

The Guild has a special obstetrical committee which has entire charge of this work under the direction of the executive board. The staff is composed of consulting obstetricians, head obstetrician and several attending obstetricians who are appointed by the executive board of the Guild. The head obstetrician has charge of the department, and the attending obstetricians are each appointed in routine for a service of one month; all cases are referred to them in accordance with this method.

There is always some one on duty at the Guild headquarters to receive messages and to notify the students.

A furnished room is provided by the Guild with telephone communication near Guild headquarters, where two students remain on duty at night. In the morning each of the students on duty informs headquarters where he may be found at any hour of the day. In this way students are available at any time.

The obstetrical outfits are prepared at Guild headquarters and when a case is called the students secure the bag and go immediately to the case.

Four of these labor bags are kept in readiness and each contains the following articles: sterile Kelly pad, fountain syringe, operating gown, cord scissors, eye-dropper, rubber catheter, two basins —one for bichloride solution for operator and one for the nurses' use in washing the vulva, and a tray for cord dressings; four copper cans containing sterile nail brush, vulva pads, cotton wipes, and douche tubes and glass catheter; bottles containing sterile gauze eye wipes in a saturated boracic acid solution, dry sterile gauze for umbilical cord dressings, sterile tape for tying cord, and an aseptic powder for naval dressing, bichloride tablets, alcohol, ergot, acetic acid, and one per cent. solution of nitrate of silver; glass jars containing green soap and vaseline. Each bag is also provided with a pelvimeter, tape measure, infants' scales and a set of history cards and a birth certificate.

Besides these labor bags an extra operating bag is provided for the use of the head obstetrician, which contains sterile sheets, towels, extra vulva pads, cotton wipes, ether, chloroform, alcohol, lysol, bichloride tablets, needles, sutures, leg-holders, *et cetera.* Instruments are added according to the nature of the operation.

In order to obtain a better understanding of the work of this department the rules for students and nurses are appended. Each student, when registering, is given a copy of these rules, as well as the rules for nurses, which have been framed, and placed in the students' duty room, and in Guild headquarters.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR

SPECIAL OBSTETRICAL DEPARTMENT

General Rules

This department is designed to give opportunities for practical obstetrical experience to medical students in their senior year.

1. To this end it is necessary for students to register in the Guild book and pay the required fee. The names of such students will be sent to the Chairman of the Obstetrical Committee, and to the head nurse of the Guild.

2. Students will be assigned to cases in rotation in order of registration. A student not reporting for duty when notified will be placed at the end of the list, and the student next in line will take his place.

3. At least two students will be on duty at the same time subject to call.

Students will be notified of their dates by the head nurse, and must take up their residence promptly at the lodging provided by the Guild. It must be understood that this lodging is not a private room, and is therefore open to those physicians and members of the Guild in charge of the department. Students must always keep the head nurse informed where they can be reached by telephone when they are attending to regular college work; or are at clinics; or are observing obstetrical cases at hospitals; or are at meals; otherwise they should be on call at the Guild lodging.

4. Each student must provide himself with a clinical thermometer and a stethoscope.

5. A Guild nurse will accompany students on all cases, and will instruct them in all duties pertaining to their department.

Special Rules

1. When notified of calls students must report immediately to Guild Headquarters where they will receive the obstetrical bags, and proceed to the case with all possible expedition. Under no circumstances will students be allowed on cases except those assigned for duty.

2. An Obstetrician will be assigned for duty each month. Should any complication arise the student or nurse must call this Obstetrician at once, or in his absence the Head Obstetrician. No student shall perform any obstetric operation; nor interfere with any mal-presentation; nor give an intra-uterine douche; nor attempt to remove the placenta manually unless directed to do so by the attending Obstetrician. In all primiparæ the student should notify the Obstetrician as soon as the second stage begins.

3. After labor is completed students must see that all articles belonging to the labor bags are put in their proper places, and the bags returned at once to Guild Headquarters. All missing articles will be charged to the student.

4. Students must visit their cases daily for the first five days, and thereafter every other day until the case is dismissed. When possible they shall arrange to make these visits at times convenient to the Guild nurses to be in attendance.

The strictest antisepsis must be observed at all visits, and when anything abnormal is found it should be reported to the Obstetrician at once.

5. Students on returning from a case must immediately enter their notes upon history cards provided for that purpose. When the case is dismissed these cards must be taken to the Head Obstetrician for his inspection.

6. Birth certificates must be filled out as soon as possible after the birth of the child, and handed to the Head Obstetrician.

7. Students must not accept remuneration from Guild patients under any circumstances, and while in charge of these cases they should not prescribe for any other patients.

8. No students can assist at any autopsy nor attend any septic case while on Guild duty.

9. The Head Obstetrician shall have charge of the first examination of patients; of clinics; of touch courses; may be called in emergencies; and shall be present at all operative cases whenever possible.

Directions to be Followed at Labor Cases

1. Arrange bed, chairs and table. Open obstetrical bag, remove and prepare contents, place Kelley pad under patient. The two small basins in each bag are for bichloride solutions, one for patient, and one for student. The tray is for cord, scissors and ties, eye wipes, etc.

2. Wash arms and hands with hot water, green soap and nail brush for at least three minutes.

3. Rinse in clean water and remove all visible dirt from under the nails.

4. If patient is not advanced in second stage, examine the breasts and abdomen carefully, diagnosing the position, presentation and posture of the child, and examine the shape and size of the pelvis.

5. Wash again with a fresh supply of hot water, green soap (common kitchen soap may be used) and nail brush for at least two minutes, paying particular attention to the nails and inter-digital spaces.

6. Wash hands thoroughly in 1-1000 bichloride solution.

7. If nurse is not present, wash the vulva and surrounding parts thoroughly with soap and hot water and then with a 1-1000 bichloride solution. If it is necessary to comply with rule seven, then wash the hands again for a minute or two, then immerse in bichloride.

8. The finger or hand is introduced into the vagina while wet with the bichloride solution and no lubricant is needed unless the vagina is very small. The first vaginal examination should be made very carefully and thoroughly and should not be repeated unless absolutely necessary.

9. So soon as the child is born the eyes and mouth should be cleansed thoroughly with the boracic acid wipes and a few drops of the silver nitrate solution placed carefully on the eyelids. The eyes should then be washed out again with the boracic acid.

10. A teaspoonful of ergot should be ready and should be administered immediately after the birth of the child. Do not wait for the placenta.

11. Examine the placenta thoroughly before leaving case. If in doubt as to whether the whole placenta has come away or not, wash off and submit it to the obstetrician for his inspection. When any abnormalities are noted in cord or placenta preserve it for inspection.

12. Under no circumstances should students leave the case until one hour after the birth of the placenta, and during that time the uterus should be watched carefully.

13. In cases where students are left in charge, should any abnormality arise, the obstetrician should be notified immediately.

The Albany Guild for the Care of the Sick Poor

SPECIAL OBSTETRICAL DEPARTMENT

Rules for Nurses

1. The Head Nurse will have jurisdiction in all matters pertaining to the work of the nurse in this department and shall direct all the assistant nurses. She shall see that the following rules for nurses are carefully carried out; that the nurses assigned to cases perform their duties; that the labor bags are properly prepared; shall report all cases making appli-

cation for attendance to the Obstetrician in charge and shall make a monthly report to him of the nurses in charge of cases and the number of calls made by them together with such other facts as may be required from time to time.

2. The nurse shall prepare all dressings and cleanse and refill the labor bags as provided in the special rules.

3. A nurse should be present each Wednesday at 11 A. M. at the Dispensary of the Albany City Hospital, or at any time or place the Obstetrician may direct, to meet applicants, furnish them with proper cards, and to assist in making ante-partum and post-partum examinations.

4. Each case shall be visited by a nurse at least two weeks prior to expected confinement, whenever possible, to instruct the patient and see that she is prepared for labor and that proper clothes are provided for the child.

5. A nurse must be in attendance at each labor case and whenever ante-partum or post-partum examinations are made; and whenever possible shall arrange for convenient hours with students in charge of a case so that both will be present at same time in making post-partum calls. Whenever requested to do so by the attending obstetrician the nurse or nurses shall assist at operative cases.

6. When nurse arrives at case she shall have charge of all duties pertaining to her work and thoroughly prepare patient, if time permits, by giving bath, enema, and preparing vulva and surrounding parts carefully, by applications of green soap and hot water, following with a 1-1000 solution of bichloride or a one per cent. solution of lysol.

7. The nurse shall instruct the student under the direction of the attending obstetrician in such duties as usually fall in her department. Nurses should be thoroughly conversant with the rules for the students and shall call their attention to any fault in technique.

8. Whenever any abnormality arises the nurse in charge of the case will call the attention of the student to it, and see that he reports the same at once to the obstetrician in charge. If any student does not attend to his work carefully and properly the nurse should report the matter to the Head Obstetrician.

9. In making post-partum calls the nurses should use the most rigid asepsis and should carry with them sterile cotton, vulva pads, and dressings for the cord and aseptic powder for same.

10. No nurse shall make any vaginal examination without direction of the Head Obstetrician, nor give vaginal douches unless ordered to do so by attending obstetrician.

11. The Head Nurse will see that pregnancy and application cards are provided for the Dispensary hour, and when filled the pregnancy cards will be kept on file at Guild Headquarters. When a call comes in the pregnancy card for this patient together with labor and puerperium cards shall be placed in bag when students call for it.

12. A birth certificate shall be placed in each bag and when returned by student the stub in certificate book shall be filled in by the nurse, and the certificate sent to the Head Obstetrician at the end of each month with the Head Nurse's monthly report.

13. These rules may be added to or changed whenever in the judgment of the Committee of the Special Obstetrical Department, together with the Head Obstetrician and Head Nurse of the Guild, it may seem proper so to do.

The Albany Guild for the Care of the Sick Poor

SPECIAL OBSTETRICAL DEPARTMENT

Rules for the Care and Preparation of the Obstetrical Bags

1. When a bag is returned from a case it is emptied of its contents, which should be carefully examined to see that all articles belonging thereto have been returned. If anything is missing the student in charge of the case should be informed immediately, and if not properly attended to by him a charge to cover the expense of the article should be made.

2. After being emptied the bags should be wiped out with a cloth dampened with bichloride of mercury solution (1-500).

3. Kelley pad should first be washed with soap, water and brush, and sterilized by scrubbing in a one per cent. lysol solution. It should then be dried thoroughly and placed in a clean muslin bag.

4. When used the douche bag will be treated in the same way.

5. The basins are sterilized by washing with sapolio and then immersing in a 1-500 bichloride solution. They are then covered with a clean muslin bag and returned to proper place.

6. The douche tubes and glass catheter should be sterilized by boiling and may be packed with sterile cotton in the brass tubes provided for them. Before being used at case they should be boiled again for at least five minutes. The soft rubber catheters should be sterilized by boiling if they have been used, then placed in cold lysol one per cent. solution and put in special retainer.

7. Bobbin one-fourth inch wide should be cut in twelve-inch lengths and six pieces placed in each bottle and sterilized for tying the child's cord. Small pieces of gauze about six by two inches of several thicknesses should be prepared for the cord dressing. At least two such dressings should be put in bottle in muslin wrapper and sterilized. Small bits of gauze should be cut about two inches square, sterilized, and then placed in a saturated solution of boric acid. With each filling of the bag these should be prepared fresh. They are to be used for washing out the babies' eyes and mouth immediately after birth.

8. Two copper cans are provided for vulva pads and cotton to be used about the vulva. It should be cut into sections about two inches square and may be sterilized in copper cans. The vulva pads may be prepared in any suitable manner of the same grade of cotton in gauze. Each pad should be at least eight by three by two inches, and at least four should be placed in each can, and sterilized. In preparing all these dressings the nurse should observe the strictest asepsis.

9. The cord scissors should be scrubbed in hot water and boiled in solution of sodium carbonate, and after being thoroughly dried should be placed in muslin bag. The eye dropper may be prepared with the douche tubes and placed with the scissors in the side of the bag.

10. The nurse should see that the bottles containing ergot, alcohol and acetic acid are filled and that the bottle containing a one-half of one per cent. solution of nitrate of silver is filled partially with fresh solution each time.

11. Small cans containing vaseline should be sterilized each time and each bag should contain a small jar of green soap, although the common kitchen soap may be used whenever found.

12. Special care must be taken to see that the scrubbing brushes are thoroughly clean and sterilized and new ones should be substituted frequently. All the copper cans should be thoroughly cleansed each time.

13. The dusting powder for cord dressing should contain: ℞ Bismuth subnitrate, two parts; acid boric, two parts; talcum (pure), five parts. About two ounces of this powder should be sterilized with dry heat and placed in each bag. A larger bottle of the same preparation may be carried in each nurse's outfit in making post-partum calls, as well as sterile vulva pads and cotton waste.

14. The bags should contain a list of the articles placed therein, and it will be the duty of the nurses to see that all articles are returned. When the bags are prepared a tag should be attached giving the date when sterilized and by whom.

15. History cards and a birth certificate should be placed in each labor bag.

16. There will also be provided a special bag for operative cases, to be prepared by the nurses and to be kept by the Head Obstetrician. This bag should contain: Two sterile sheets, each in separate wrapper; one-half dozen sterile towels, two in each wrapper; one pair of sterile canvas leggings with lithotomy straps, one operating gown, one scrubbing brush, two ounces lysol solution, one-half dozen sterile vulva pads and cotton, one yard five per cent. iodoform gauze in bottle, one yard plain sterile gauze, one tube medium catgut ligatures, one dozen silkworm gut sutures in wrapper, five hundred grammes ether, four ounces chloroform, two medium and one large curved needles. Other instruments will be provided as needed by Head Obstetrician.

I trust that this brief outline of the work of the Special Obstetrical Department of the Albany Guild for the Care of Sick Poor has placed the matter properly before the medical profession and that it may enlist the earnest support of all physicians interested in the welfare of the students, and in the betterment of the condition of the poor women.

Some time ago the chairman of the Special Obstetrical Committee sent a circular letter to the members of the medical profession in this city asking for the co-operation in securing for this department such charity obstetrical cases as might apply to them. We would be glad to receive such cases, and by notifying Guild headquarters by telephone, or card, the head nurse will call upon the patient and arrange for her future care.

ASSOCIATION OF THE ALUMNI OF THE ALBANY MEDICAL COLLEGE — THIRTY-FIRST ANNUAL MEETING.

The thirty-first annual meeting of the Association of the Alumni of the Albany Medical College was held in Alumni Hall on Tuesday, May 3, 1904. The usual informal reception was held in the college library, where photographs were exhibited and greetings exchanged, between the hours of 9 and 10:30 A. M. The annual meeting was called to order by the President, Dr. Joseph D. Craig ('84), of Albany, at half-past ten o'clock.

The following named members of the Association, with invited guests, students of the college and others interested, were present: Henry Darwin Didama, ('46); Henry D. Wells, ('57); Herman Bendell, Albert Vander Veer, ('62); Alfred B. Huested, ('63); Charles H. Terry, ('64); Nelson H. Mesick, ('68); Daniel C. Case, Willis G. Tucker, ('70); Alexander W. Fairbank, Henry E. Mereness, Thomas Wilson, Hiram K. Worden, ('74); Franklin P. Beard, Eben A. Wood, ('75); Marcus M. Lown, ('77); Frederic C. Brewer, John H. Cotter, Earl D. Fuller, George P. K. Pomeroy, William O. Stillman, ('78); Ezra A. Bartlett, Walter C. Crombie, ('79); George S. Munson, ('80); Ira Harris, ('81); Frank A. Palmer, William B. Sabin, Walter W. Scofield, ('82); John F. Reilly, ('83); Joseph D. Craig, Fred R. Greene, Louis A. Harris, James W. King, Luman B. Rulison, Michael D. Stevenson, Charles F. Timmerman, M. Arthur Wheeler, Bela J. Ward, ('84); E. Hudson Rider, Thomas P. Scully, ('85); Willis G. Macdonald, Andrew MacFarlane, Charles H. Moore, Herman V. Mynderse, ('87); Charles F. Clowe, George G. Lempe, ('88); G. Emory Lochner, J. Montgomery Mosher, William Van Doren, ('89); William H. Happel, Frederic W. Loughran, Arthur G. Root, Edgar S. Simpkins, ('90); Charles E. Davis, Robert B. Lamb, James W. Wiltse, ('91); W. Irving Goewey, Howard E. Lomax, Leo H. Neuman, Clement F. Theisen, ('92); Flavius Packer, Thomas A. Ryan, Percy G. Waller, ('93); Joseph B. Betts, Arthur J. Capron, Charles H. Cole, John H. Cotter, 2nd, Walter C. Gilday, George W. E. Goodell, Wilfred S. Hale, Charles T. La Moure, Henry W. Lucksinger, John F. McGarrahan, James M. Moore, James T. Park, Arthur Sautter, Ralph Sheldon, C. Howard Travell, ('94); Charles J. Butler, William J. Wansboro, ('95); H. Judson Lipes, C. Harper Richardson, ('97); James F. Rooney, Alvah H. Traver, Edgar A. Vander Veer, ('98); George E. Beilby, Eugene E. Hinman, Daniel A. McCarthy, ('99); Ernest A. Sweet, (1900); Arthur J. Bedell, E. Gerald Griffin, John M. Griffin, ('01); Stillman S. Ham, ('02); Donald Boyd, J. Howard Branan, Conrad R. Hoffman, Millard F. Shafer, George H. Smith, James N. Vander Veer, Isaac E. Van Hoesen, ('03); Palmer R. Bowdish, George L. Branch, Charles W. Chapin, Guy F. Cleghorn, Chester F. Cobb, Thomas F. Cole, John I. Cotter, Marcus A. Curry, Arthur T. Davis, William S. De La Hoyde, Branson K. DeVoe, Thomas J. Dowd, Silas L. Filkins, Leland D. Fosbury, J. N. Bennett Garlick, William E. Garlick, Everet C. Haviland, Harold E. Hoyt, George J. Jennings, William G. Keens, Arthur C. Kline, G. Spencer Lape, Harry L. Loop, Dennis A. Murphy, Robert J. O'Brien, Jr., Daniel V. O'Leary, Jr., Joseph Day Olin, John H. Reid, Benjamin J. Singleton, Edward A. Stapleton, Arthur W. Thomas, Richard H. Van Denburg, Frank E. White, George D. Wilde, Guy V. Wilson, Maurice W. Wolff, Trevor C. Yates, ('04); Theodore J. Bradley, Frederic C. Curtis, Spencer L. Dawes, Henry Hun, Cyrus S. Merrill, Samuel R. Morrow, Howard Van Rensselaer, Samuel B. Ward, (Hon.).

On motion of Dr. Tucker, the reading of the minutes of the last annual meeting was dispensed with and the minutes were approved as printed in ALBANY MEDICAL ANNALS.

The President introduced Professor Samuel R. Morrow, who delivered the address of welcome on behalf of the faculty.

On motion of Dr. W. I. Goewey the thanks of the Association was tendered Professor Morrow for his address and a copy was requested for publication.

Dr. Walter W. Scofield then moved that the President appoint a committeee of five to nominate officers for the ensuing year. Carried. The President appointed as such committee: Drs. Walter W. Scofield ('82), Daniel C. Case ('70), Percy G. Waller ('93), Marcus M. Lown ('77) and George P. K. Pomeroy ('78). The committee retired.

The Recording Secretary presented the

REPORT OF THE EXECUTIVE COMMITTEE AND RECORDING SECRETARY

Two meetings of the Executive Committee have been held during the year. At the first meeting, held May 25, 1903, the Recording Secretary presented the minutes of the Thirtieth Annual Meeting of the Association, including an account of the Commencement Exercises, and, on motion, this manuscript was referred back to the Recording Secretary to be published in the usual way, and the Treasurer was authorized to meet the expense of reprints and envelopes for mailing and of the Treasurer's blanks. Dr. Tucker, as Chairman of the Alumni Banquet Committee, presented a report showing a deficit of $104.31, which had been paid by the College Faculty.

At a meeting of the Executive Committee, held February 27, 1904, the Recording Secretary reported that the proceedings of the last meeting of the Association had been printed in the ALBANY MEDICAL ANNALS for June, 1903, and that 1,550 reprints had been made and had been distributed to the members of the Alumni Association. The extra cost of printing had been met by the Treasurer. Arrangements for Alumni Day were discussed and committees appointed. On motion, the Faculty of the College was invited to participate and to appoint a representative to deliver an address of welcome at the opening of the annual meeting. The Corresponding Secretary was authorized to have the usual notices printed and distributed announcing the meeting. It was, on motion, decided to have the usual Alumni dinner on the evening of Commencement Day.

On motion of Dr. Tucker, the report was adopted and ordered entered upon the minutes.

The report of the Treasurer, Dr. Robert Babcock, was presented, in his absence, by Dr. MacFarlane, as follows:

TREASURER'S REPORT

CR.

Balance on hand May 1, 1903	$ 6 75	
Dues received during year 1903	107 00	
Total	$113 75	

DR.

Various bills paid for which vouchers are presented	$ 92 96	
Balance on hand May 1 ,1904		$ 20 79
College Building Fund		$106 46

[Signed] ROBERT BABCOCK, *Treasurer.*

On motion of Dr. MacFarlane, the Treasurer's report was referred to an auditing committee, consisting of Drs. MacFarlane, La Moure and Loughran, who subsequently reported it correct. The report of the Auditing Committee was received and the committee discharged, and the report of the Treasurer was accepted and ordered placed on file.

The President's address being the next order of business, Dr. Herman Bendell, an ex-President of the Association, was called to the chair, and President Craig delivered the following address:

PRESIDENT CRAIG'S ADDRESS

A CONSIDERATION OF SOME TENDENCIES IN MODERN MEDICAL EDUCATION

Fellows of the Alumni Association:

There has never been a time in the history of medical education when the evolution of medical science demanded such rapid development of all the teaching departments of medical knowledge and such radical changes in methods of instruction in them as it does to-day. It is in no wise either surprising or remarkable that this is so. The American medical college has ever been practical and responsive to the changing conditions of professional requirements created by the rapid growth of our national life and by the celerity with which nature has yielded up her mysterious enigmatical secrets to medical investigations. The endeavor to adapt this practical, responsive American medical college to the necessities of the times is manifesting itself in various directions. A consideration of some of these tendencies in medical education is the purpose of this paper.

The statement of the problem which is to be solved is simple enough, but its elucidation is attended with innumerable difficulties. The problem is this: How shall the American medical college find place in its curriculum for instruction in the vast accumulated and accumulating discoveries of medical science, and by what method can these newer accessions to medical knowledge best be taught, to the end that the most important function of an institution of medical learning may be subserved in the preparation of students of medicine, efficiently qualified to apply the latest discovered truth to the amelioration of the physical misfortunes of men? The solution of this problem is an intricate and involved one, and is engaging the anxious thought of the medical educators of our country. The endeavor to organize this new knowledge into new departments or to enlarge existing ones has resulted in much confusion, and the adoption of experimental courses, which as yet have not proved their right to permanent acceptance.

The process of adaptation of medical education to new discovery has been especially progressive during the last decade, and the tendency during this time has been first to overcrowd the medical course, and second to force some of the primary branches from the professional to the preparatory school. Of all the physical sciences, not excepting electricity, medical knowledge has accumulated most marvelously. The correlation of discovery and education, however, is general throughout the domain of science, and is not a characteristic of medicine alone. Adaptation of the new to the old is the problem confronting every branch of scientific education. So that the demand upon the preparatory school for a broader preliminary education made by the medical college is the more powerful in that it has the support of every department of technical education. So strenuous has been the pressure upon medical educators in this effort at adaptation, to include necessary instruction within a prescribed period of years, that a student may not be too old at graduation to fitly begin a useful career, that the amount of work required of him has overrun the possibilities of the medical course. It seems to be agreed that the primary medical course leading to the degree, M. D., is not to be increased by the addition of more years to the course. Some of the necessary work of preparation, therefore, is being forced from the medical college into the literary college and preparatory school. The preparatory school has in consequence found it imperative to rearrange the courses of instruction. The idea suggested by the term "liberal education" has changed materially within the last generation, and the function of preparatory education has been enlarged and variously directed. The preparatory school and college have ceased to endeavor to form the human mind in one mold for a life of moral leadership, but have come to recognize that a liberal education is possible as well from the study of mathematics and science as from classics and literature. Fitting courses of instruction, leading up to the various technical, professional and economical activities of life, have as much part in the modern scheme of preparatory education as have the humanities. What the final outcome of this tendency may be no man can prophesy. It only seems certain that whatever the sequence of study may be in the future the total of years spent on preparation shall not be increased. Whatever the final arrangement may be, any present adaptation must be elastic and tentative, and be ready to provide for the discovery of to-morrow as of to-day.

The standard of education generally must be set for men of ordinary intelligence. Occasionally a genius excites wonder, but so rarely do they come and so unusual is the quality of their minds that they are not to be judged by the standards of ordinary men. We must not have standards higher than the average man can aspire to and attain. The limitations of human mental possibility render a division of knowledge necessary. There is thus seen a tendency in medical education to earlier and more extended specialization, and such specialization is but a recognition of the limitations of the human mind. The youth of to-day must determine early in life what his special field of work is to be. In the preparatory school at sixteen the question, What am I to do in the world? must be answered by the ambitious student, whereas fifty years ago the answer was often delayed until the completion of the college course at twenty. So universally is this tendency coming to be recognized that the authorities of preparatory schools and colleges have prepared to meet, in their courses of instruction, as far as practically possible, the preliminary necessities of medical, technical and other higher instruction. Scarcely a school of the high-school grade but now presents three or more courses for the choice of a student.

The present arrangement of courses may answer the purposes of medical education as it stands to-day. However, the immediate future may demand still further change as soon as medical educators or the law determine permanently what minimum requirements will be demanded as a preliminary to a medical education. So great has become the demand upon the medical curriculum (which by universal consent must be concluded within four years),.to provide instruction greater in quantity and quality than ever before that there is a tendency to force from the medical college elementary instruction in chemistry, physiology and biology into the preparatory school. The present arrangement of preparatory courses must be regarded, therefore, as merely provisional and awaiting the eventual determination of the relative proportion of education which is to be borne by the preparatory school and the professional college.

The minimum requirement for beginning the study of medicine is being gradually advanced. There is a tendency towards requiring something at least of collegiate instruction, such as heretofore has led to the degree of A. B. College degrees, however, have no longer their former significance, and it is not now a question of acquiring a degree which the practical American regards so much as the accomplishment of practical results. So, whether the A. B. degree shall be conferred after two, three or four years of college exercise, matters not so much to the medical educator as the preparation of qualified men to pursue the medical college curriculum to the best advantage. Johns Hopkins University already demands the college education, and the universities of Chicago and California have followed its lead. But these universities are devoted largely to work of research along various lines. As a basis for the conduct of such research work, literary preliminary training and a knowledge of modern language may be regarded as imperative, but for the fulfilling of the ordinary duties of professional life to the public, these higher requirements are still held in abeyance. The Association of American colleges and other influences, acting under law, have raised the standard of medical instruction materially during the last twenty years. The end is not yet, but it is to be remembered in seeking the still higher qualifications of practitioners of medicine that the object to be attained in all primary medical education is the competent equipment of the average student for practical service among the people. The unusual man can afterwards equip himself for special service in the post-graduate and university schools. It is interesting here in passing to note the influence of increased educational requirements upon the attendance in the medical colleges. Since the advance requirement of four years and additional work went into effect only a few years ago, there has not only not been a falling off of students but a positive increase. There were 25,000 students in the 154 medical schools of the United States in 1900 and 28,000 in 1903, an increase of 3,000. The prediction that the medical schools would suffer in attendance from the tendency to increase requirements preliminary to the study of medicine has not, therefore, been fulfilled. It is safe to assume that the average medical student is now better qualified to begin the study of medicine than ever before, and that a future still further advance of the educational requirement would result only in mutual good to the profession and the public.

In the beginning, medical science divided naturally into seven principal divisions. While these grand divisions still remain the base of all medical teaching, there has grown up under each of them special departments, each department of such stupendous growth and practical interest that no one man can say longer that he knows all of medicine, or all of surgery, or all of chemistry. But few men in these days stand at the head of any of the grand divisions of medicine, master of all knowledge of all its subordinate departments. Each division is made up of several masters co-operating and collaborating in the production of a finished whole.

To illustrate the tendencies to a necessary and greater subdivision of medical instruction it will be recalled that fifty years ago anatomy was thought to be a sufficiently vigorous exercise in a book of five hundred pages, and the story of surgery and medicine was each told in a comparatively small volume by a single author. Now a text-book in any of these subjects is not considered complete without the collaboration of several authorities, and a single volume gives but a meagre presentation of the subject. Anatomy is now being specialized into embryology, histology, gross anatomy, comparative anatomy, topographical anatomy and applied anatomy. Physiology has developed special departments of experimental work on the brain and other normal functions, and of physiological chemistry; medicine has multiplied its departments and given separate consideration to the viscera of the thorax, of the abdominal region, and has parted company with the pathological manifestations of the eye and ear, and nose and thorax, and the skin. Physical diagnosis demands a department of its own.

Surgery has been specialized in part into abdominal and genito-urinary diseases, orthopedics and fractures and dislocations, and requires special instruction in bandaging, in the preparation of aseptic dressings and other essentials of operations. Both medicine and surgery now depend upon pathological institutions in which the blood and urine and fœces and contents of the stomach may be analyzed, tissue differentiated, and the bacteriology of all elucidated. So pathology has constituted another department of its own. All these specialized departments of the primary divisions of medical science are seeking to find a place in the curriculum of the modern medical college. It must be clearly evident that no student can learn in four years, or even a greater number of years, more than a general outline of all these subjects to which specialists in each are giving their lives. What is the relative importance of each of these branches of medical knowledge, and how much can a student be taught in the prescribed time to best fit him for his life work, are some of the problems which all medical colleges are seeking to solve to-day. A common sense consideration of the limitations of the human mind and the consequent necessity of providing a medical education within the boundary of human possibility will eventually beget a sequence and quality of instruction well calculated to produce efficient practitioners of medicine .

To reach and develop the maximum capability and capacity of the average human intellect is the endeavor of all education. It is absurd to suppose that compends and short cuts to knowledge on the one hand, or millions of endowment or specialized laboratories for research work on the other, can enable the average human intellect to do more. Early recognizing the limited sphere of her usefulness, the medical college has never undertaken the training of specialists. Her work has been confined to a general medical education. Such higher instruction along narrower lines has been the work of hospital and post-graduate schools, and I believe will be the special future task of the universities. While universities are now affording undergraduate instruction in medical science and will continue to do so, it is a question whether or not their largest sphere of usefulness in the field of medical education will not lie along the lines of opportunity for special and research work. However that may be, it is certain that the average student of medicine, however thoroughly prepared, can in four years seize, digest and assimilate but an outline of the extensive science of medicine and have at graduation such a minimum of knowledge as to make him fit to begin a career of practical usefulness in relieving human ills.

If we leave out of consideration the post-graduate school, the university idea is a new tendency in medicine growing out of the same causes as the foregoing tendency to reorganize and reapportion medical knowledge. The university has in reality sprung up by reason of a demand, growing stronger year by year, for an opportunity to enlarge the training in special lines of those competent to profit by it.

In so far as the university enlargens, broadens, strengthens the work of the college, it is a welcome addition to the scheme of medical education. The university in medicine has come to stay and is a twentieth century idea. It is in harmony with the spirit of the times and is universally welcomed as a co-ordinate branch of an enlarged scheme of medical education. But the university must not grow intolerant. The suggestion. that a few richly-endowed institutions purpose to educate a select number of highly-cultured students of opportunity to the extinguishment of the smaller teaching colleges, strikes some of us as an illusion and vision of impracticability. The American idea is to give all men an equal opportunity and to beget conditions under which men of natural ability, even though limited in early resources, may have, if worthy, the favoring circumstances to enable them to rise to positions of usefulness. The history of our country, political, medical or otherwise, is full of illustrations of the advantage of fostering the American idea. It is not likely that the field of medicine will be by law or otherwise so circumscribed that an exalted educational requirement will limit the activities of the profession to a favored few. There must in the future, as in the past, be doctors to minister to the necessities of all classes in the community. We must still have in the profession men of a diversity of gifts; teachers, authors, highly educated, learned in the science; surgeons and physicians skilled in the art; consultants, specialists. general practitioners of all grades. Time will solve all difficulties in medical education. The small college will survive and the college and the university will find their relative sphere of usefulness. There is room for all. It is difficult to suppose that any considerable part of the one hundred and fifty-four medical institutions, now instructing 28,000 medical students in the science of medicine, will close their doors because circumstances require a rearrangement of the methods of medical instruction. The medical college is about to accept the greater opportunity offered to prepare men more thoroughly than ever before for the practice of the beneficent art of medicine.

Not only the subject matter of medical education, but also the method of instruction in medical colleges is undergoing a rapid metamorphosis. The laboratory and clinic are coming more and more into evidence as factors in medical education. The laboratory method of instruction, however, is not a new one. It is as old as college education itself. It is only new as applied to certain other branches of medicine. The laboratory method has for years been tested and its value proved in all medical colleges. The dissecting room, which is only another name for anatomical laboratory, and the chemical laboratory have been valuable assistants in teaching those two branches of science for years. The same method is simply being extended to other departments of medical knowledge. Particularly is this so with general and special pathology, without which the scientific work of colleges and hospitals could no longer be carried on, and the relation between the pathological laboratory and the practical art of medicine grows more intimate every year.

A distinction ought to be made, however, between those institutions which are using the laboratory method as a means of elementary instruction in connection with medical colleges and the universities that offer unusual laboratory facilities in which specialists do make research work. The medical college laboratory needs only to be practical from the student's standpoint. The laboratory for research work must be unusually and specially equipped. The end to be obtained in each case is so entirely different that it is unfair to compare the laboratory of the one with the laboratory of the other. It is now universally conceded that the extension of the laboratory method to the teaching of medical science is both necessary and valuable.

It was, perhaps, to have been expected that during the first enthusiastic advocacy of the laboratory method, as applied to the study of pathology, much should be claimed for it, and that the tendency should have been to make it the sole method of instruction. I am writing from the standpoint of under-graduate primary medical education. It is a question in mind whether the results of the laboratory method used exclusively as a means of instruction without explanatory lectures have accomplished all that has been claimed for it. Some useful lessons can be learned from the experience of those departments which have used this method for years. As an illustration, the average student of medicine is apt to imagine that lectures in anatomy are necessarily dull and dreary and impracticable (and, perhaps, under certain auspices they always are), and that if he can only be turned loose in the dissecting room or anatomical laboratory he has found a short cut to an easy knowledge of anatomy. Disappointment only lies before him. The accumulated knowledge of many earnest workers as recorded in the text-book is discarded and dependence is placed upon untrained observing powers to yield information concerning the structure of a most intricate piece of machinery, which no man, no matter how industrious his application or profound his knowledge, has yet viewed in its entirety. In no other activity of life of which I am familiar is the experience of others so discarded. A competent knowledge of anatomy demands the industrious use of both laboratory experience and didactic instruction. Such, I feel sure, will also eventually be the experience of those who teach any department of scientific medicine by the laboratory method exclusively, without the aid of explanatory lecture, which in addition also provides place for instruction in knowledge of the science unattainable by laboratory manipulations. A complete knowledge of the whole is thus attained. I have yet to see demonstrated that the average student comes from the laboratory as thoroughly instructed to pass competitive examinations to enter upon the practical affairs of life as those who have received instruction through the combined method. The man who proposed to learn only by experience in every detail of life dwarfs his own development. Such means of education is impossible. The student who learns only primary laboratory methods must have but a limited view of the whole subject. Most men have confidence in the work of others and are willing to receive instruction from the recital of the experience of others, particularly in such matters as are beyond their own opportunity for observation. Each of these two methods has its sphere of usefulness; but I believe a broad, liberal education demands the use of both. A general survey of a subject is essential to systematic and classified knowledge.

A word in conclusion is to be said concerning the tendencies in medical education towards endowed medical schools. The demand for such endowment is pressing and every college must in time meet the demand. Theoretically each college will need that sum in endowment which will enable that particular institution to fulfill its function in the scheme of medical education. The endowed institutions to-day are fewer in number, but many colleges are looking forward to the time when generous endowments will enable them to extend their teaching facilities. The utility of endowment has only recently been shown and this need of the colleges made known. Eventually it seems certain that that college will best perform its teaching function in which all the chairs of primary instruction in chemistry, physiology, therapeutics, anatomy and pathology have such amply pecuniary support that those engaged in teaching these branches can give themselves exclusively to such work.

These tendencies of the times have had a beneficial influence on the fortunes of Alma Mater. It is a source of congratulation that this College has for so many years given a practical medical education to hundreds of competent, successful and useful practitioners of medicine. To-day she seeks to sustain her excellent reputation. That there has been no dimunition in the thoroughness and completeness of her capacity to impart medical knowledge by systematic method is shown in the fact that, notwithstanding the high educational requirements of entrance and an increase of the period of study from three to four years, there has been no reduction in the number of her matriculates. Whatever the tendencies of the times in medical education may ultimately demand of medical colleges as a qualification for perpetuity, we may rest assured that the fidelity and zealous attachment to this institution of her grateful alumni, the faculty of the College and the progressive citizens of Albany will bountifully supply. We boys of twenty years ago, my classmates of 1884, who have gathered here to-day in class reunion, view the medical tendencies of the times with supreme satisfaction, and survey the history of the progress of medical teaching in our Alma Mater with genuine pleasure and sincere gratification. We recall that during these twenty years Alma Mater has enlarged her teaching capacity many fold. We have seen since our graduation the practical branches of medicine and surgery afforded the amplest facilities for offering instruction and provided with a thoroughly-equipped modern hospital, which is recognized as a model of completeness and perfection. We have watched, since 1884, the growth of a laboratory of pathology from humble beginnings in a small closet of the College building to an institution of more than local reputation, amply furnished with a full complement of thoroughly trained specialists, and meeting every practical demand upon it. We recognize and commend the spirit of progress that has characterized all the departments of the College and the enterprising determination of those charged with the perpetuation of the College interests to maintain such standards of time, of educational limitations and of sequence and quality of instruction as the marvelous progress of medical discovery renders indispensable, the practical necessities of the average matriculant demonstrates to be advantageous, and the tendencies of the times make expedient.

Twenty years ago the class, of which I have the honor to be a member, stood in the places now occupied by you who are to-day to enter a profession honored by the community, distinguished by its service to humanity, esteemed for the probity with which it maintains confidential relations with the family or individual. As we received a hearty welcome to membership in this Alumni Association we looked into the future with the same eye of confident hopefulness with which you to-day contemplate the approaching years. Not all of our lofty aspirations of that day have been attained. Some of those who stood with us on the Alumni day of 1884—one in every four—have passed into the great future; some have entered upon other occupations; some are widely separated in remote localities. Of those who survive a generous proportion have returned to this reunion to testify in your presence to their loyalty to Alma Mater, to recall again the joys and sorrows of student days, and to spend the hours of reunion in friendly intercourse.

In these twenty years since graduation a stupendous increase in the sum of medical knowledge has taken place. Many of those things which you now appreciate as facts were in those days faintly suggested as possibilities, or hoped for as proximate contingencies. It seems incredible that so much scientific progress should mark the passing of twenty years. Some of these marvelous developments may be profitably recalled.

Pasteur was then still engaged in his biological experiments and his hypothesis of the germ origin of many diseases, which has been subsequently recognized and proved to be true, was the subject of bitter and grievous controversy. Lister was proclaiming the antiseptic principles of surgical treatment and all the early operations coming within our opportunity for observation were conducted under a carbolic acid spray. Antisepsis quickly grew within a few years into the perfect aseptic method of procedure universally prevalent to-day. While we were pursuing the medical course, Koch discovered the tubercle bacillus, and in connection therewith gave the scientific world the knowledge of the utility of differential aniline staining of tissue upon which so many subsequent discoveries of pathogenic bacilli have depended.

The causes of malarial fever, of pneumonia, of diphtheria, of puerperal fever, of abscess and of innumerable other germ diseases were unknown. The instrument by means of which malarial and yellow fevers were communicated was not even dreamed of in those days. The whole subject of bacteriology was in its infancy and could be easily disposed of in four didactic lectures. Laboratory courses for students in bacteriology or pathology were not available anywhere. Pathology, as you know it to-day, is a revolutionary science compared with its prototype of two decades ago. The abdominal and other serous cavities were sealed from the surgeon's knife. Peritonitis was not then a reproach for surgical neglect. Appendicitis was not the fashion in those days, and the terms typhlitis and perityphlitis, then used frequently in connection with appendicular abscess, have become obsolete. Diseases of the pancreas were scarcely recognized, and diabetes was a mysterious condition indefinitely connected with a perverted liver function. We knew of but red and white blood corpuscles, and a blood count was a rarity and in no sense the scientifically perfect method with which you are all familiar. Blood parasites and blood infections are a discovery of recent years. Myxoedema and other diseases of the ductless glands were unknown. The anatomy, physiology and pathology of the nervous system have been revolutionized. Acromegaly, syringomyelia, myasthenia gravis, and many more, were terms unfamiliar to the boys of 1884. Among important therapeutic remedies, cocaine, nitroglycerine and adrenalin are of the present.

The beneficent advent of new drugs, the astounding discovery of new diseases, the scientific perfection of surgical technique, the remarkable demonstration of the bacteriological cause of disease, we have witnessed since our graduation day. Yet the spirit of progress is undiminished, and no man can prophesy what surprising and marvelous revelations of nature will be disclosed to your astonished eyes before your tergintennial anniversary.

As you pass beyond the portals of this College into the great world, the field of observation will widen and your present scientific knowledge be clarified by experience. It is not often that your scientific erudition will be uncompromisingly applied without the modifying circumstances of extraneous conditions. The whole and highest obligations of an expert and proficient physician are not discharged when a cover-glass is stained, a test tube manipulated, a few blood cells counted, an aseptic dressing prepared, a stethoscope applied, and a history recorded. The humanitarian dictates of professional duty will demand a course of action higher than the trade level of making a diagnosis, applying remedies, and collecting a bill. The public will expect and are entitled to your unrecompensed service in all movements having for their consummation the physical welfare of the community; the necessities of charity will command your unselfish sacrifice, and the misfortunes, the improvidence and the excesses of the individual will require your generous forbearance, and excite your magnanimous pity. By following such a commendable course of conduct the practitioner of medicine raises his profession to the exalted heights of a noble art.

As I welcome you to membership in this Alumni Association, and in a way to membership in an honorable profession, I am far from deprecating the value of scientific investigation and knowledge. If you keep yourself fully informed of the great movements of scientific progress you must be diligent students all your lives. Such industrious pursuit of medical knowledge is highly to be commended. It is only my desire, during these final moments of your under-graduate career, to bring you under the spell of an inspiration to attain high ideals to the end that you may achieve in your lives an honorable reputation among men, and at the close a multitude of admiring friends may contemplate with gratification your good deeds and consider your career a benediction to mankind.

The members of the Class of 1904 were present in a body, and rose as the President addressed them at the conclusion of his address, and received them into membership in the Association.

Dr. Albert Vander Veer moved a vote of thanks to the President for his interesting address, a copy of which he was requested to furnish for publication in the ALBANY MEDICAL ANNALS, and he moved also that 2,000 extra copies be printed for further distribution, and that a copy be sent to every library in the country. Ex-President Bendell put the motion to a vote, and declared it unanimously carried.

President Craig then resumed the chair.

The report of the Historian of the Association, Dr. Hinman, was then presented, and ordered entered on the minutes.

REPORT OF THE HISTORIAN, E. E. HINMAN, M. D.

As once again we assemble within the historic old precincts of our Alma Mater our thoughts turn to those who were our companions during the years we spent in preparation for our life work. The presence here of so many of our alumni evinces the love we still bear our old College and the oft-repeated saying of Dr. March, that "the capital for success of the Albany Medical College lies in the interest of its graduates," is still very true.

Forth from these walls have gone a small army of men ready to do battle with the Grim Destroyer. How well they were prepared for their work is shown as we pass in review the fame and faithful service of scores of our number. Here then is the prime reason why our Alma Mater deserves our interest; the proof of the successful preparation she furnishes is the men she has graduated. Let us then ever remember her with the reverence that is her due.

During the past year it has been my pleasant opportunity to correspond with all of the living members of the Classes of '44, '54 and '64, of whom we have any record, and also to receive reports of the Classes of '74, '84 and '94 from their respective historians. These will be printed in full in our proceedings and we trust will be of special interest to the members of those classes.

During the past year our ranks have been depleted by the strong hand of death, and to-day we mourn the loss of twenty-four of our fellow alumni. Perhaps more than this number have passed from among us, but we have been able to secure a record of but twenty-four.

NECROLOGY

Rial Strickland ('39), at Enfield, Conn., December 5, 1903, æt. 89.
William F. Holcombe ('50), at New York City, March 17, 1904, æt. 77.
Solomon W. Austin ('54), at Cataract, Wis., ———, 1897.
Thomas J. Barton ('55), at Albany Hospital, September 11, 1903, æt. 73.
Daniel S. Young ('55), February 20, 1902, æt. 77.
Alfred H. Brundage ('56), at Xenia, Ohio, December 10, 1903, æt. 68.
Edward A. Everett ('56), at Burlington, Vt., January, 1904, æt. 74.
William E. Allen ('56), at Scranton, Pa., August 20, 1903, æt. 66.
William G. Allen ('57), at Mansfield, Mass., April, 1903.
Newton C. Harris ('57), at Schuylerville, N. Y., August 6, 1903, æt. 70.
John D. Kenyon ('57), at Westerly, R. I., August 12, 1903, æt. 69.
Charles H. Porter ('59), November 21, 1903.
Theodore Y. Kinne ('62), at Paterson, N. J., March 6, 1904, æt. 65.
Edwin S. Barnes ('64), at Pleasant Plains, N. Y., February, 1904.
Reuben Barney ('65), at Chillicothe, Mo., July 16, 1903.
Daniel B. Howard ('65), at Warrensburgh, N. Y., September 21, 1903, æt. 63.
Henry A. Crary ('66), at Knox, N. Y., December 25, 1903.
Julius J. Kempe ('68), at Pinellas, Fla., March 7, 1904, æt. 61.
Leander Swartout ('80), at Prospect, N. Y., March 10, 1904, æt. 64.
Gorton H. Rice ('80), at Great Barrington, Mass., July 22, 1903.
William E. Fortune ('81), at Nicholville, N. Y., February 4, 1904, æt. 46.
Edgar E. Maryotte ('82), at Coxsackie, N. Y., February 28, 1904, æt. 50.
Allen R. Thompson ('83), at Asbury Park, N. J., August 22, 1903, æt. 45.
William Winthrop Betts ('83), at Los Angeles, Cal., June 15, 1903, æt. 41.

Respectfully submitted,
E. E. HINMAN, M. D., *Historian.*

HISTORY OF THE CLASS OF 1844

WILSON T. BASSETT. After graduating located at Mt. Vision, N. Y., where he remained in practice until 1869, when, realizing the need of a larger field, removed to Cooperstown, N. Y., where he is now practicing.

Is a member of the Otsego County and of the New York State Medical Societies; is married and has four children.

JOSEPH B. BROWN. Last address, North Tarrytown, N. Y., whereabouts unknown in 1902.

PETER A. BRUMAGHIM. Died at Scotchbush, Montgomery county, N. Y., April 17, 1897.

BENJAMIN E. BUSHNELL. Died at Little Falls, N. Y., May 1, 1891, aged about 80.

SILAS H. CHESEBROUGH writes as follows: "I may say that my medical career was a brief one. Six months of practice saw its end. During the sixty years since, I have been engaged in various activities. Such professional knowledge as I acquired during my course, though not extensively profitable for others, had doubtless contributed much to my own comfort and happiness during a life that has been eminently exempt from bodily ailment and disease, and finds me now still hale and hearty, though several years past the four score mark allotted. I have no knowledge of any of my classmates, but apprehend few of them are yet living. I may be the sole survivor of the twenty-four who took their degree in 'Forty-four. I have always felt an honest pride in being an alumnus of Albany Medical College, and shall ever cherish a lively love for Alma Mater."

JACOB A. CROUNSE. Whereabouts unknown.

HORACE B. DAY. Died August 24, 1870.

CHARLES B. GUNN. Whereabouts unknown.

EDWARD HALL. Died December 10, 1898, at 17 E. 66th street, New York City, aged 81.

RENSSELAER JEWETT. Died, at New York City, March 7, 1890.

DANIEL LEWIS. Whereabouts unknown.

ROWLEY MORRIS. Whereabouts unknown.

WALTER MOTT. Whereabouts unknown.

JULIUS D. MUNN. Died May 5, 1890, at Van Hornesville, N. Y.

JOHN F. NORBURY. Died January 13, 1895, at New York City.

RENSSELAER OTTOMAN. Married immediately upon graduating and settled in Greene, N. Y., remaining there three years. Finding it very uphill work establishing a practice in that locality, moved thence to Archibald, Pa., and practiced there for seven years. From this place he removed to Carbondale, Pa., then a city of 8,000 inhabitants, where he has remained to the present time. During the Civil War he served as acting assistant surgeon in and about the hospitals of Washington, D. C. Also served as surgeon in the Pennsylvania militia for three months immediately after returning from Washington. Has been in active practice since that time until ten years ago, at which time he retired. Has been three times president of the Carbondale Medical Society. The doctor has been in good health all of his life, and is now enjoying the best of health at eighty-three, and is surrounded by children, grandchildren and great-grandchildren.

WILLIAM S. PARKHILL. Whereabouts unknown.

HENRY C. POTTER. Whereabouts unknown.

JAMES RAWSON. Whereabouts unknown.

JAMES RIGGS. Whereabouts unknown.

Isaac Schermerhorn. Stottville, N. Y. Died September 11, 1887, aged about 68.

Albert E. Sullard. Last address was at Franklin, N. Y., but have had no response to several inquiries sent him.

John N. Taylor. Whereabouts unknown.

Sterry A. Weaver. Whereabouts unknown.

Respectfully submitted,
E. E. Hinman, *Historian, A. M. C. A. A.*

HISTORY OF THE CLASS OF 1854

O. C. Alexander. Still resides in Albany and doing an active practice.

Solomon W. Austin. We are just advised of his death, which occurred about seven years ago. Will add details as soon as received.

James I. Baker. Died at Yaphank, N. Y., May 6, 1886.

Adoniram J. Billings. Letter addressed to him at Freedom, Me., just returned marked " Deceased."

H. L. Bullions. Whereabouts never known.

William C. P. Butman. Last known at Macon City, Mo. No response to inquiries.

Jonathan Cass. Died at New York City, January 20, 1886, aged 61.

Heman Chaffee. Died at Tolono, Ill., May 22, 1900, aged 83.

S. Chapman. Wherebouts never known.

Edwin R. Chase. Whereabouts never known.

Levi R. Church. Whereabouts never known.

Peleg A. Clark. Whereabouts never known.

R. L. Cumming. Whereabouts never known.

Charles H. Darrow. Whereabouts never known.

Estis H. Davis. Last known at Elmira, N. Y. No response to inquiries.

John C. Dixon. Last practicing at Candor, N. Y. Has since died.

James H. Eaton. Died at Syracuse, N. Y., July 20, 1891.

Peter Faling. Died at Gasport, N. Y., November 23, 1901, aged 69.

T. B. Flagler. Last known at Bridgeport, Conn. Recent letter to him was returned unclaimed.

Lyman Force. Whereabouts never known.

Aurora W. Giddings writes as follows: "I graduated from college in June of 1854 and came west at once to Anoka, Minn., where I have since lived. When I first reached this section of the then territory of Minnesota I had the whole of the northwest before me with but one other physician near me. He was at the time twenty miles below at St. Anthony's Falls, and complained bitterly that I had invaded his preserves. During the years 1855 and 1856 there were seven hundred Indians located at Crow River. They were under my care during that time, and I found that the much-vaunted medicinal knowledge of the Indian was worse than useless to him. In those early years of my practice in this State my patients were scattered over a large area, making drives of sixty miles, or more, a necessity. I have served as school commissioner, county physician and health officer. During the war I was draft surgeon, and for twenty years thereafter was pension surgeon. After forty years of active practice I took down my shingle and spent the winter in Florida, hoping thus to break up my practice. Returning in the spring of the year, I found that the said practice refused to be broken up, and so I have since looked after a large number of the old friends who refused to be treated by any other physician. I am still serving on the pension board, but am now completely out of active practice from advancing years. I am still fairly well, and this fall will see the rounding out of fifty years of almost continuous residence in this city.

WILLIAM HAMILTON. Died October 13, 1877. Place unknown.

SAMUEL F. HANCE. Last known at Minneapolis, Minn. Letters are returned unclaimed.

THOMAS HELME. Died at McKownsville, N. Y., March 17, 1889, aged 57.

G. N. HUBBARD. Last known at Carthage, N. Y. Letters returned unclaimed.

RICHARD E. HUDSON. Whereabouts never known.

AMOS S. JONES. Whereabouts never known.

DOUGLASS S. LANDON. Whereabouts never known.

JOHN D. LEWIS. Whereabouts never known.

MULFORD MARSHALL. Whereabouts never known.

WILLIAM MURPHY. Whereabouts never known.

JOHN T. NEAL. Whereabouts never known.

BYRON E. OSBORN. Began practice in Oswego, N. Y., and remained there two years, during one year of which was health physician of the city. From there removed to Waupun, Wis., practicing there for about four years and doing a good deal of surgery. When the Civil War began served six months with the Missouri militia and established the first hospital in St. Joseph. At the expiration of enlistment was commissioned surgeon with rank of major and ordered to take charge of a large post hospital at Lexington, Mo., remaining there three years, when physical disabilities compelled my retirement. After retiring from the service of the United States I located in Auburn, N. Y., where I have been continuously ever since, confining my practice to chronic diseases.

R. R. OWEN. Whereabouts never known.

NATHANIEL B. RICE. Last known at 34 Clark street, Chicago, Ill. Letter returned unclaimed.

WILLIAM C. ROGERS. Whereabouts never known.

CHARLES H. SMITH. Has remained in his home town, Albany, N. Y., ever since his graduation, and is now engaged in the drug business.

HENRY F. SMITH. Whereabouts never known.

G. O. SPENCE. Whereabouts never known.

DUDLEY C. SPENCER. Practiced at Augusta, Wis., where he has since died.

HORATIO SPENCER. Last known at Pike, N. Y. Letter returned unclaimed and marked "Deceased."

RICHARD SUTPHEN. Whereabouts never known.

GRANVILLE S. THOMAS. Died July 11, 1902. Place unknown.

SYLVESTER M. VAN ALSTYNE. Died October 28, 1882. Place unknown.

Sumner C. Webb. Died at Homer, N. Y., December 21, 1901, aged 81.
Henry B. Whiton. Died at Troy, N. Y., May 2, 1885.
Marshall Whiteside. Whereabouts never known.
W. H. Woodruff. Died at Pine Bush, N. Y., November 30, 1896, aged 65.
R. S. Wright. Whereabouts never known.

Respectfully submitted,
E. E. Hinman, *Historian, A. M. C. A. A.*

HISTORY OF THE CLASS OF 1864

Gideon H. Armsby. Died November 20, 1881. Place unknown.

Hiram Becker. Is still located at Slingerlands, N. Y., although no response was received to letter.

George H. Bosley. Last known at Lakeville, N. Y. No response to letter.

Horace L. Bower writes: "Immediately after graduation, in 1864, came to this place, Greenville, Mich., then a hamlet of a few hundred inhabitants almost in a dense forest and twenty miles from a railroad station. Have been county physician for nineteen years and am still at it. Was for several years secretary of the Northern Michigan Medical Society, and am now secretary of the Montcalm County Medical Society.

N. Roe Bradner. Late in the year 1865 was appointed assistant physician at the Sailors' Retreat, a sailors' hospital on Staten Island, N. Y., and remained there a year. In 1869 was appointed assistant physician to the Pennsylvania Hospital for the Insane at Philadelphia, remaining there three years. Married in 1871 and established a practice in Philadelphia, making mental diseases a specialty. In 1888 opened a private hospital for the insane at Burlington, N. J., but after three years of this work was compelled to retire on account of broken health, returning to Philadelphia, where I have since remained, giving my principal attention to literary work along the lines of mental diseases. I am a member of the leading medical societies of the country.

Harvey J. Christman. Located at Columbia, N. Y., in 1865, and have remained here ever since. Have worked hard, but have gained a competence, have a fine home and a good class of patients. Was married in 1878, but have no children. Have been health officer of the town for twenty years and have always taken an active interest in politics, but have refused every elective office. Am enjoying excellent health and have never been sick for more than a week since beginning practice.

James B. Cochrane. Began to practice in Chelsea, Mass., marrying in 1865 and remaining there until 1867, going from that place to St. Paul, Minn., and practicing there for one year. From there removed to Cottage Grove, Minn., and remained in that town until 1873, doing a general country practice. I then again moved, going this time to Dover, Maine, where I have practiced ever since. Have served for twelve years as secretary of the Board of Pension Examiners at Dover.

John E. Comfort. One of the oldest and best known practitioners of the Borough of the Bronx, and a member of the county medical society, died at his late residence, No. 1315 Franklin avenue, New York City, on May 29, 1901. Was born in St. Louis, Mo., October 6, 1837, graduated from the Albany Medical College in 1864, and on January 19, 1865, entered the United States army as assistant surgeon of the 60th New York State Volunteers. He took part in Sherman's famous "March to the Sea," and later on in that year was honorably discharged by President Lincoln in his well-known "Muster-Out." In 1867 came to New York, settling on Franklin avenue, which was then a portion of old Westchester county. In 1875 was appointed sanitary inspector of the board of health, and soon had one of the largest practices in this part of the country. For over thirty years was a warden on the Vestry of St. Paul's Protestant Episcopal church, on Washington avenue, Morrisania, and during his entire life he was best known for his many kindnesses to the poor. Among his patients he numbered the oldest and wealthiest families of the upper wards of the city.

John H. Dorn. Directly after graduation went into the army as assistant surgeon and joined General Sherman in his march to the sea, also assisting in establishing hospitals at Savannah. Left the army in 1865 and established private practice in New York City, where I am still. For twenty-two years was police surgeon, but was retired in 1895 on a pension. Assisted to establish the New York Medico-Legal Society, and am also a member of the New York County Medical Society. Have been married twice and my second wife is now living.

D. D. Drake. After graduating located in Central Square, New York, where I practiced until 1888, when I removed to Johnstown, N. Y., where I have since resided and am engaged in the drug business. Have been reasonably successful and am enjoying a green old age.

Edward F. Edgerly. Died at Mineville, N. Y., June 23, 1889, aged 50.

Henry A. France. First located at Norway, N. Y. After five years removed to Poland, N. Y., and entered into partnership with preceptor, Dr. S. R. Millington. After some three years he retired, leaving me to practice alone, which I did until 1885, when, having lost my wife, I sold out and went to California, returning in April, 1886, to Far Rockaway, N. Y., my present location. Retired from practice in January, 1902. Am now acting as postmaster and am enjoying life at 70 years.

James W. Freeman. Began practice in Windsor, N. Y., remaining there until 1877. From there moved to Saginaw, Mich., where I have since had an extensive general practice with most gratifying results, and am still in active practice at the age of seventy-five. Am associated in practice with my son. On Tuesday, March 22, 1904, Mrs. Freeman and myself celebrated our golden wedding anniversary.

Cornelius A. Groot. Died at Cato, N. Y., August 6, 1897.

B. Rush Holcomb. Upon graduating was commissioned assistant surgeon 157th N. Y. S. Vols. and served actively until the muster-out in August, 1865. Immediately went to Whitehall, N. Y., where I have been in practice ever since. Was married in 1868 and have two children. Am examiner for several large insurance companies and societies, as well as following an active general practice.

James P. Kimball. After a long period of service in the medical department of the army, during which time he attained the rank of colonel, he died April 19, 1902, at Tannersville, N. Y.

J. Leavitt Lambert. Last known at Hoosick Falls, N. Y. No answer to letters sent him.

Henry Laning. Had been for many years in practice in Osaka, Japan, where he is supposed to be at present, although he has not replied to inquiry.

Dwight M. Lee. Died at Oxford, N. Y., October 5, 1895.

Jehiel Lefler. Upon graduation entered practice with preceptor, Dr. Francis Burdick, at Johnstown, N. Y., continuing in this manner until 1872. Married in 1871 and, after several years of married life, became the father of a daughter who has since married in her turn. I confine practice to office and city work.

Leslie Martin. Was located for the first twenty years of practice at Lysander, N. Y., and in May, 1885, removed to my present home, Baldwinsville, N. Y. With one exception I have had no serious illnesses and am still busy with active practice.

Gustavus McFadden. Last known at Vilas, Kansas. Letter returned marked "Unclaimed."

William H. McLean. Whereabouts never known.

Robert H. Melius. Nothing known except that died December 2, 1876.

W. H. H. Morris. Whereabouts never known.

John O'Flaherty. Shortly after graduation was commissioned assistant surgeon, 170th N. Y. Vols., and remained in the service until the close of the war. Began practice in Hartford, Conn., in 1865, where I have remained ever since and have had the usual measure of success. Am a member of the State, County and City medical societies, and am president of the latter. Have served as treasurer of the New England branch of the Alumni Association. Have been engaged in general practice for nearly thirty-nine years and am now ably assisted by my youngest daughter, Dr. Ellen O'Flaherty.

Lewis W. Pendleton. Died at Portland, Me.

Benjamin F. Pope. Entered the army in 1864 and served as assistant surgeon until close of war. Remained in the service and by regular promotions finally reached grade of colonel and deputy surgeon-general in 1898. During the following year he organized and equipped the medical department of the Philippines, where he finally died while still in active service. His death took place at Manilla, February 14, 1902, of acute uraemia.

Charles C. Powell. Died at Ottuma, Iowa, January 6, 1901, of septicaemia.

John Russell. Whereabouts never known.

Charles C. Reid. After graduation went to Westernville, N. Y., and was there engaged in general practice for seven years. He then removed to Rome, N. Y., where he remained in active practice until the last two or three years. He still continues in practice, but only retains his old clientage of former years. In 1879 he spent a year in Europe traveling and visiting various clinics on the continent. For twenty-five years after coming to Rome he was the examining surgeon for the New York Central

Railroad. He has always been and continues to serve as a physician on the staff of the Rome Hospital. He has always taken an active part in the development of the various business industries of the city of Rome, and continues to serve as a director on the board of the Rome Brass and Copper Company, the Rome Metal Company, the Rome Building Association, and is one of the owners and president of the Arlington Company.

Frank A. Shurtleff writes: "I graduated in December, 1864. Came to Somerset and settled here in practice on the following month. Soon found myself surrounded with a lucrative business. Was married the same year. Have two sons, one a graduate of pharmacy in Boston, the other a graduate of medical college in New York, and now is doing well in the city of Los Angeles, Cal. My wife died in less than three years after marriage; married again in less than two years. Have a daughter by my second wife now twenty-two years of age engaged in teaching public school. I united with the Baptist church soon after coming here, and have been superintendent in the Sunday School about twenty years. I am a member of the school board, where I have served more than thirty years. I have always been temperate, not even using tea and coffee. I am now well, enjoying life and its surroundings at the age of sixty-six, and am constantly engaged in practice. I was here twenty-three years before I had a vacation, after which I took my wife and daughter and spent the winter among the orange groves of Florida. I have collected enough from my practice to keep square with the world, and have a good house and lot besides."

Charles Safford. Whereabouts never known.

Charles E. Spring. Died October 25, 1890.

J. T. St. John. Whereabouts never known.

John Sweeney. Whereabouts never known.

Charles B. Tefft. Last known at Utica, N. Y. No response to letter.

Charles H. Terry. Practicing in Brooklyn, N. Y., and attended the meeting.

George H. Thoma. The day I graduated was appointed assistant surgeon of the Second New York Heavy Artillery, and immediately joined my regiment, which was then stationed in front of Petersburg, Va. I remained in the army until October, 1865, when I was mustered out. Spent the Winter of 1865 and 1866 in the hospitals of New York City, going from there into Montgomery county, N. Y., where I practiced for a year. In the Spring of 1867 started overland for the Pacific coast and practiced in White Pine, Nev., for ten years, going from there to Eureka, Nev., a famous mining camp forty-five miles distant from White Pine. After practicing with a great deal of success at the last named place for fourteen years, removed to my present residence, Reno, Nev., where I have resided ever since. Married in 1887, and have two daughters. Am now surgeon for several large railroad corporations, and in hopes before many years to relinquish active practice.

Robert H. Van Patten. Whereabouts never known.

Myndert Van Patten. First located in Hannibal, N. Y., and after a year's practice removed to Fair Haven, N. Y., after which I practiced seven years in Chatsworth, Ill., and then moved to Peoria, Ill., where I stayed until 1878. In the last named year I moved to this town, Sterling, Kansas, where I have practiced ever since. Was married January 3, 1865, and again in 1887; have four daughters and four sons. Have been chairman of the school board, member of the board of health and mayor of the city, also member of County and State medical societies.

Henry P. Vosburgh. Immediately after graduation was commissioned surgeon in the army, but, owing to opposition of my family, abandoned the project. I then located at Halsey Valley, N. Y., where I have been in active practice ever since. Am sixty-six years old and expect to keep the even tenor of my way for some years.

Harrison R. Winter. Died at Phoenicia, N. Y., March, 1888.

Timothy E. Wilcox. Chief surgeon, department of the Columbia, having reached the age limit for actual service, was retired on April 26, 1904. Was born in Litchfield, Herkimer county, N. Y., April 26, 1840, and was graduated at Union College, Schenectady, N. Y., 1861. He joined the army of the Potomac at White House Landing, Va., May, 1862, and served in the quartermaster's department until the withdrawal of McClellan's command to James river. He was recalled to Alma Mater in 1863 as assistant in chemistry and instruction in physiology; continuing medical studies until graduation at Albany Medical College in 1864. He was appointed assistant surgeon, Sixth New York Heavy Artillery, in December, 1864, and joined his regiment in front of Petersburg, Bermuda Hundred, Va., in January, 1865. He remained in Virginia until June, 1866, and was assistant surgeon, U. S. V., April, 1865. He was appointed assistant surgeon, U. S. A., May 14, 1867. He resigned July 1, 1868, and was appointed assistant surgeon November 10, 1874; major and surgeon, 1891; lieutenant-colonel, U. S. V., 1898, lieutenant-colonel, U. S. A., 1902, and colonel, U. S. A., 1903.

Respectfully submitted,
E. E. Hinman, M. D., *Historian, A. M. C. A. A.*

HISTORY OF THE CLASS OF 1874

Edward B. Atkins. Last known to be in Saratoga, N. Y.

Charles G. Bacon. After reading medicine three years attended the Albany Medical College in 1841, and the College of Physicians and Surgeons in 1848. In 1858 received the degree of M. D. from the Regents of the University, and the same degree in 1874 from the Albany Medical College. Has always practiced in Fulton, N. Y., his present residence. Is now ninety years of age and enjoying fairly good health.

Solon F. Bliss. Died, July 18, 1896, of diphtheria.

J. Lyman Bulkley. Last reported from Sandy Creek, N. Y., in 1894, where he had been in active practice since graduation.

Alonzo Churchill. In 1861 was commissioned surgeon-major of 14th N. Y. Volunteers, and continued in the service until mustered out. He then returned to Utica, N. Y., and continued there in active practice until his death, which took place December 28, 1896.

DANIEL W. COLCORD. Reported last in 1894, when he was still practicing in Seabrook, N. H.

DANIEL T. CONDICT. Is practicing in Goshen, N. Y.

VALENTINE CORNELL. Died at Cobleskill, N. Y., August, 1876, of phthisis.

GEORGE F. DICKINSON. Whereabouts never known.

CYRUS ECKER. Died at Chesterville, N. Y., October 22, 1894.

ALEXANDER W. FAIRBANK. Is still in active practice at Chazy, N. Y., where he first located. Has been an active member of most of the medical societies of the county and state. Is married and has two daughters.

JAMES D. FEATHERSTONHAUGH. Is still in active practice in Cohoes, N. Y., where he has been ever since graduation.

HENRY W. GILES. Has never practiced medicine, but is still engaged in the practice of music in Albany, N. Y.

HARRIS I. FELLOWS. Drowned at Albany, N. Y., August 29, 1881.

HENRY T. HAMMOND. Died at Chase's Mills, N. Y., March 11, 1892, of Bright's disease, after a year's illness.

R. GRANT HAVENS. Died at his home, Jefferson, N. Y., December 30, 1895. After graduation took up practice at Jefferson, and at various times held the positions of coroner, health officer and member of assembly. Left a widow and eight children.

EDWIN S. HOYT. Located at Schultzville, N. Y., where he was enjoying a large practice when he last reported, in 1894.

DAVID HUGHES. During the war served as assistant surgeon with the 14th N. Y. Vols. At the close of the war took up practice in Canandaigua, N. Y.; then went to Washington Mills, N. Y., where he resided twenty-two years. He resided in Utica, N. Y., at the time of his death, which occurred about 1890.

HENRY V. HULL. After practicing four years in Coeymans, N. Y., removed to Schenectady in 1880, where he remained until 1889, when failing health compelled him to relinquish his practice and return to his home, Coeymans, N. Y., where he died, March 27, 1890, of miliary tuberculosis.

DWIGHT R. KENYON. Practiced at Mt. Vision, N. Y., until 1881, when he removed to Sherburne, N. Y., from which place he reported last, in 1894.

WILLIAM A. MALTBY. Whereabouts never known.

ANDREW MATTHEWS. After his graduation practiced at Breakabeen, N. Y., where he died of consumption.

MATTHEW J. MCCLELLAN. After graduation located at Garrattsville, N. Y., where he practiced until May 24, 1887, on which date he died of heart disease.

SAMUEL MCCLELLAN. Whereabouts never known.

JASPER MEAD. Is practicing at Clarksville, N. Y.

HORACE C. MILLER. Is practicing in Rensselaer, N. Y.

HENRY E. MERENESS. Since graduation has been in practice in the city of Albany, N. Y., where he is now engaged in general work. Holds a commission as surgeon in the United States Marine Hospital Service, and at the last session of the legislature his nomination as a member of the board of managers of the Hudson House of Refuge was confirmed.

JOHN E. METCALF. Studied medicine, not with the idea of practicing, but for educational purposes only, and since graduation has devoted his time to the work of the ministry. For several years has been chaplain of Clinton Prison at Dannemora, N. Y. On May 2d was transferred as chaplain to the Eastern New York Reformatory, at Napanoch, N. Y.

CHARLES T. MONTGOMERY. Reported in 1894 that, after having served at house physician to the Albany Hospital, located at Glasco, N. Y. At that time he had a large practice, was married and had three children.

LUTHER B. NEWTON. Reported in 1894 that he was then in active practice at North Bennington, Vt.

ALDEN M. OLIVER. Is doing a quiet country practice at Voorheesville, N. Y.

MILES J. O'REILLY. Is in active practice in Fishkill, N. Y. Is married and has three daughters.

JOHN S. PEASLEE. Is located at Schodack Landing, N. Y., where he has been ever since graduation except for one year, which was spent at Fort Plain, N. Y. Is married and has several children.

FRANK S. PETERS. Practiced in Cohoes, N. Y., until 1882, when he fell from a hammock, striking upon his spine, the injury resulting in his death June 28, 1883.

JAMES M. PORTER. Died September 12, 1876.

PLATT R. SAWYER. Died at Bedford, N. Y., March 31, 1885, aged 51 years.

JAMES I. SCOLLARD. Died at Clinton, N. Y., February 20, 1903.

JOHN B. TODD. After graduation located at Parish, N. Y., where he practiced twenty years. He then removed to Syracuse, N. Y., where he now has a very satisfactory practice, and is surrounded by a wife and two daughters.

EDGAR V. TRULL. After graduating located in New Scotland, N. Y. The following Spring removed to Cohoes, N. Y., in which city he was appointed police surgeon, which position he held until 1884, when he removed to Manchester, Vt., his present residence. He is in active practice and meeting with good success.

JOHN D. WARREN. Died at Medina, N. Y., March 1, 1889.

ISAAC G. WHEELER. Was last known at Buffalo, N. Y.

ROBERT M. WHYTE. Commenced practice at Ellenburg, N. Y. Subsequently he went to Kansas and engaged in the banking business. He died at Kingman, Kansas, September, 1886, of typhoid fever.

WILLIAM J. WILCOX. Whereabouts never known.

THOMAS WILSON. Began practice in Albany, N. Y., but removed to Clavarack, N. Y., in 1876. A few years ago he took up his residence at Hudson, N. Y., where he is now conducting a large practice. Is married and has two children.

WYLLIS F. WOOD. After graduating settled in East Albany, N. Y., where he died, April 11, 1901, aged fifty years.

HIRAM K. WORDEN. After graduating located at Whitestown, N. Y., removing to Westmoreland, N. Y., in 1876, where he still resides and has a good practice. Has never been laid up for a whole day by sickness since commencing practice. Is married and has two children.

John K. Young. After graduation located at Rural Grove, N. Y., where he remained in practice until 1881, when he removed to Johnstown, N. Y., where he is still in active practice.

Respectfully submitted,
Henry E. Mereness, *Historian.*

HISTORY OF THE CLASS OF 1884

Robert Babcock. After graduation spent eighteen months in the Albany Hospital. On January 1, 1886, opened an office in Holyoke, Mass., practicing there six months, when he returned to Albany, N. Y., where he is at the present time. Is married and has two children.

Frederick S. Bloss. Immediately after graduation located in Troy, N. Y., and has remained there since.

J. Edwin Bowen. Died at Albany, N. Y., March 6, 1885, of Bright's disease.

Edmund F. Bronk. Located in Amsterdam, N. Y., after graduation, and is in active practice there at the present time.

Clinton G. Cooey. Went to Aurora, Ill., in August, 1884, and entered into partnership with a resident of that town. In October of that same year he removed to Pine Bush, N. Y., practicing there until May, 1886, from which place he removed to Montgomery, N. Y., where he is to-day.

Charles M. Coe. Maintained his connection with the Swinburne Dispensary for a short time. He then removed to Scriba, N. Y., and remained there doing a large practice until 1890 when he went west and settled in Meckinock, N. D., where he died March 27, 1897, of heart disease.

Joseph D. Craig. Is practicing his profession in Albany, N. Y., where he is conducting a general practice. Is professor of anatomy in the Albany Medical College, attending physician to the Albany Hospital, and is also health officer of the city. He served as president of the Alumni Association for the year 1903-04.

W. A. E. Cummings. Resides in Ticonderoga, N. Y., but has never, as yet, entered upon the practice of his profession.

Pierson C. Curtis. Settled in Round Lake, N. Y., in June, 1884, and has had a fair practice ever since. Is married, but has no family.

Franklin Devol. Practiced for a few months in Burtonville and Glenville, N. Y., from which latter place he went to Guilderland, N. Y., where he died of typhoid fever April 27, 1891.

Jacob M. Falk. After graduation spent three years in Europe in the study of the diseases of the eye and ear. On his return home he opened his office in Buffalo, N. Y. In 1892 he suffered from la grippe, which was followed by nervous prostration. This compelled him to give up work and he returned to his home in New Haven, Conn. He was afterwards taken to the State Hospital at Poughkeepsie, N. Y., where he died November 24, 1893, of paresis.

David J. Fitzgerald. Is practicing at Glens Falls, N. Y., where he located after taking post-graduate course in New York City.

Joseph A. Flynn. Served one year in St. Peter's Hospital. He then opened his office in Pittsfield, Mass., where he remained until the time of his death by pneumonia, November 24, 1892.

Frederick R. Greene. After graduation practiced eighteen months at Petersburgh, N. Y., and then removed to Albany, N. Y., where he is now in active practice.

Louis A. Harris. After graduation practiced in Valley Falls, N. Y., and Rosendale, N. Y., for a few months, and then removed to Eddyville, N. Y., where he practiced two and one-half years, from which place he removed to Newburgh, N. Y., where he is doing an active practice in connection with a good drug business.

John V. Hennessy. After serving a term at St. Peter's Hospital opened his office at Little Falls, N. Y., but remained there only a short time. He then returned to Albany, where he is now in active practice. He is attending surgeon at St. Peter's Hospital.

Clinton G. Hickey. Is located at Denver, Colorado, where he is in general practice. Is at the present time clinical assistant in medicine and lecturer on medicine at the Denver and Gross College of Medicine. Is a member of the state and county societies, and also of the American Medical Association. Is married and has two children.

George W. Holding. Was located at Watervliet, N. Y., but his present whereabouts are unknown.

Hamilton Hollidey. After graduation practiced a few months at Gansvoort, N. Y., from which place he removed to Glens Falls, N. Y., and remained in practice there eighteen months. Since that time he has been located at Luzerne, N. Y. Is now health officer for the town, which position he has held fifteen years. Is unmarried.

Winfield G. Hubbard. Is pleasantly situated as pastor of the First Baptist church in Oakland, Maine, where he settled March 31, 1902. Prior to that time he was pastor of the churches in Wilton, N. H., and Campton, N. H. He has never practiced medicine. Is married and has one daughter.

Hiram L. Ives. Began practice in Troy, N. Y., and did a large business until his removal to Lansingburgh, N. Y., where he died December 17, 1901.

Arthur A. Jones. Practiced a few months in Duluth, Minn., and then returned to Gloversville, N. Y., where he took charge of a drug store in connection with his practice, remaining there until 1885. He then practiced in Fly Creek, N. Y., until May, 1886, when he returned again to Gloversville, where he died June 1, 1886, of pulmonary tuberculosis.

William C. Kellogg. Is practicing in Syracuse, N. Y., making a specialty of gynaecology. For six years conducted a private hospital with Dr. H. B. Hawley, of Syracuse, for the care of this class of patients. Is a member of state and county societies and an ex-president of the Central New York Alumni Association of the Albany Medical College.

James W. King. Is actively engaged in the work of his profession at Stottville, N. Y. Is married, but has no family.

Elmer E. Lansing. Married immediately after graduation and started at once for Egypt, where he remained five years as a medical missionary. He then returned to this country and practiced in Haverstraw, N. Y., until

1891, when he again went to Egypt. He died in Asseout, Egypt, June 2, 1893, of phthisis, leaving his wife and two children in Egypt.

Willard C. Marcelius. Located in Phillipsport, N. Y., after his graduation and later at Port Jackson. In 1886 he returned to Albany to practice, where he died, December 23, 1893, of appendicitis.

James McCaughin. Began his practice in Albany, N. Y., where he contracted typhus fever while attending the prisoners at the penitentiary, among whom an epidemic had broken out. His death occurred February 14, 1886.

George H. McTammany. First located in Cohoes, N. Y., and remained there four years. From there he went to New York City, married and practiced one year, when his death was caused by consumption, April 12, 1891.

William B. Melick. Is located at Fort Edward, N. Y.

Edgar W. Morehouse. Began his practice in Peru, N. Y. In 1890 was married and went abroad for a few months. Upon his return he spent a short time in Troy, N. Y., going from there back to Peru, where he died May 13, 1902.

Jacob A. Rick. First located at Pittstown, N. Y., remaining there but two years, when he removed to Greenwich, N. Y., where he is now in practice.

Walter F. Robinson. Present address unknown. Practiced a few years in Albany, going from there to New York City.

Luman B. Rulison. Is located at Watervliet, N. Y. At present he is health officer of the town, and attending physician to several institutions. Is married and has one daughter.

James Selkirk. Has been doing a successful practice in Aurora, Ill., ever since his graduation. Is surgeon to the Aurora City Hospital and member of the board of education.

Patrick E. Stafford. Has been a successful practitioner in Saugerties, N. Y., for the past twenty years.

Michael D. Stevenson. Is located in Albany, N. Y., and doing a fair practice.

George E. Swift. Is in general practice in Hudson, N. Y.

Charles F. Timmerman. Is located in Amsterdam, N. Y. Has been city physician for several years, and is a member of the county and state medical societies. Is married.

Robert A. Walker. Was last known to be in San Francisco, Cal. Did not answer inquiry.

Bela F. Ward. Has remained in Troy, N. Y., where he located twenty years ago. Is doing a general practice.

M. Arthur Wheeler. Settled in the city of Troy, N. Y., immediately after graduation, and has remained there ever since. He is a member of the Rensselaer County Medical Society, of which he has been president. Is a member of the New York State Medical Society. In 1896 he was appointed physician and surgeon for the Rensselaer County Almshouse and Hospital, which position he still holds. Is married and has six children.

Eliphalet N. Wright. Was last known to be at Lee, Mass. Did not answer inquiry.

Edgar Zeh. Is located at Waterford, N. Y. Is married, has one daughter, and is doing a fair practice.

Respectfully submitted,
Michael D. Stevenson,
Historian of the Class of 1884.

HISTORY OF THE CLASS OF 1894

George H. Beebe writes: "After graduating, I spent four years at Salisbury, Conn. Am now located at Pittsfield, Mass. Am married."

Charles Bernstein. Am located at New York State Hospital, Rome, N. Y., where I am making a specialty of nervous and mental diseases. I am a member of Oneida County Medical Society, New York State Medical Society, American Association of Medicine, officer of Institution for Feeble Minded.

Joseph B. Betts. After serving as interne at the Albany Hospital one year I entered the Buffalo State Hospital as a member of the staff. Am a member of Buffalo Academy of Medicine.

Henry Ward Briggs. Am now located at Wilmington, Delaware, where I am making a specialty of children's diseases together with a general practice. Am a member of the Delaware State and New Castle County Medical Societies; am on the staff of the New Castle County Hospital and surgeon for the Edge Moor Iron Company. Am a member of the Board of Public Education and a member of State Board of Medical Examiners. Am married and have one daughter, eighteen months old.

George Brookins. After graduating, practiced nine years at Middle Grove, Saratoga county, N. Y. Am now located at Gloversville, N. Y. Am married and have three children, two girls and a boy.

James Burton. After graduating, entered St. Lawrence State Hospital, leaving there in December, 1894, to enter practice at Gilbert Mills, Mass., from which place I removed to my present location, Cooperstown, N. Y., in July, 1896. Am a member of Massachusetts State and Otsego County Medical Societies, treasurer of Otsego County Society, and a member of the staff of Thanksgiving Hospital, Cooperstown, N. Y. Am married, have one daughter, seven years old.

Arthur J. Capron. Located now at Long Island State Hospital, Flatbush, Brooklyn, second assistant physician. Have been at Long Island State Hospital at Kings Park, Long Island, Female Hospital on Wards Island (now Manhattan State Hospital West). Am not married.

William Wesley Clark. Am now located at Maine, N. Y., member of Broome County Medical Society. Am married and have a good business.

Charles H. Cole. After graduating, I spent two months taking things easy, and then opened an office—or rather purchased the office and business of a physician then very recently deceased, at Milford Mass. I have remained in Milford since that time. I am a member of the Thurber Medical Association, the oldest and largest medical society in this vicinity, it having been established in 1854. In 1898, after holding several minor offices, was elected the president. Am attending surgeon at the Milford

Hospital during the winter months, and consulting physician for the Worcester Emergency Hospital. In 1898 was elected a member of the board of health and have since been retained on the board. Served one year as the secretary and three years as chairman. Am married and have one child.

E. J. Cusack. I was located five years at Palermo, N. Y. Am now located at Fulton, N. Y. Am member of Oswego County Medical Society. Was coroner six years, nominated again on Republican ticket. Married, one daughter, six years old.

John H. Cotter. Came here to Pine Plains in 1894, as soon as I had met the requirements of the law; have been in the general practice of medicine since. I like it, have plenty to do, enough to eat and wear, have several good horses and wagons, and I think I enjoy life pretty well. In 1896 married Elizabeth C. L. Lasher. We have one son, a young man five years old, whom I hope some day in the early twenties will be a graduate of our famous old College on Eagle street.

William Henry George. In reply to your kind note, would state that I am now located at 304 Central avenue, where I have been for the past three years, having formerly resided at 318 Central avenue. After graduating from College I served on the Albany Hospital staff as interne for seventeen months, after which I became assistant to Dr. Macdonald for the ensuing sixteen months, then did post-graduate work at Johns Hopkins Hospital, Baltimore, also at Philadelphia. Entered general practice in the Fall of 1897, since which time I have been actively engaged in the practice of my profession at the two addresses given above. Am surgeon to the Albany Hospital Dispensary, also to the South End Dispensary, likewise surgeon to the N. Y. C. & H. R. R. Have been treasurer of the Albany County Medical Society for the past four years. Am married, but have no babies.

Walter C. Gilday. In October, 1894, I came to New York and started in practice. After residing in New York for about six months I was appointed clinical assistant in the department of gynecology of the New York Polyclinic Medical School. I held this position for about two years, and then was transferred to the department of general surgery. I am now lecturer in surgery and attending surgeon to the New York Polyclinic Hospital and attending surgeon to St. Elizabeth's Hospital. I am surgeon for the American Ice Company. I was for three years surgeon for the Metropolitan Street Railway, but resigned the position four years ago. My present address is 32 West 36th street, N. Y. I was married two years ago. I have no children. I am a member of the New York County Medical Society, the Medico-Surgical Society, the Celtic Medical Society, vice-president of the Albany Medical College Alumni Association of Greater New York.

Walter Wesley Goddard. Immediately after graduation in April, 1894, was appointed resident physician and surgeon to Ellis Hospital, Schenectady, N. Y. After serving that institution one year I began private practice in the city. Have served two terms as county physician and attending physician to Children's Home. Am a member of Schenectady County Medical Society, medical staff of Ellis Hospital and secretary of Board of United States Examining Surgeons, and do an extensive practice as examiner for several of the largest life insurance companies. In June, 1902, was married, and have one son.

George William Ellsworth Goodell. I am located at Bridgeport, N. Y. Have been here two years. I first settled at Green Island, where I staid seven months, then removed to Brainard Station, where I remained three years; from there I moved to East Chatham, five miles from Brainard Station, where I staid four years; from there I came to Bridgeport. I have a good general practice, no specialty. Was married July 16, 1902, to Miss Florence Cady, of East Chatham, N. Y., who died June 1, 1903; no children.

Eugene Howard Goodfellow. After graduation, I spent a year in the Albany Hospital, and resigned and accepted an appointment as medical interne in Buffalo State Hospital, resigning after six months to accept a position of assistant physician on the staff of the Eastern Michigan Asylum at Pontiac, Mich., which position I held for one and one-half years, resigning at the end of that time to take up general practice in Gloversville, N. Y., where I have been located since 1897, and have been very well satisfied with my work and remuneration.

Wilfred Sylvester Hale. Served on the staff at St. Peter's Hospital, Albany, N. Y., 1894-95. Located at No. 50 Clinton avenue, this city, 1895-1903; am now located at No. 38 Clinton avenue. Am member of the Medical Society County of Albany, attending surgeon, Dispensary, Albany Hospital; demonstrator of anatomy, Albany Medical College; health physician of city of Albany. Am married.

Owen Elon Jones. Am located at 392 East Main street, Rochester, N. Y. Do considerable surgery, and am member of Monroe County Medical Society, Hospital Medical Society, Rochester Academy of Medicine, New York State Medical Society; surgeon to the Eastman Camera Works, Seneca Camera Works, C. T. Hamm Lantern Works, and a dozen other corporations.

Charles Ten Eyck LaMoure. I am at the Rochester State Hospital, where I have been continuously since October 1, 1894, as second assistant physician. Am a member of the Monroe County Society, the Rochester Pathological Society, the Rochester Academy of Medicine, the Central New York Medical Association, the American Medico-Psychological Association. I am at present secretary of the fourth section of the Rochester Academy of Medicine. Have taken several courses at the State Pathological Laboratory in New York City. Was married June 25, 1902; have no children.

Stephen M. Long. I am located at Fort Duchesne, Utah, temporarily under government orders. Was located one year in Providence, R. I., two years in Cairo, Egypt. Am a member of the Association of Military Surgeons, attending physician and surgeon of Post Hospital at Fort Duchesne, Utah. I have been in the United States service since June, 1898, as contract surgeon. I have participated in the wars with Spain and the Philippine camp; I went to Santiago while General Shafter was in command and served with the Ninth Massachusetts Volunteers; came home with them and went to the Philippines in February, 1899, and served for nine months in First Reserve Hospital both as physician and as surgeon; came home in April, 1900, and served in the General Hospital, Presidio, California, for nine months. Am married and have two boys.

Harry W. Luchsinger. I am at present located at Housatonic, Mass. I located here in October, 1894, and have practiced here ever since. I practice no specialty, and am a member of the Massachusetts Medical Society, Berkshire District. Have enjoyed a good remunerative general practice since my first year of practice. I have held the local board of health office for the past three years. Was married June 30, 1897, and have one child, a girl four years old. I am living in my own home, and enjoy life as much as is possible for a busy practitioner of medicine.

John Mahan. Not heard from. Last known address, 213 Woodward avenue, Detroit, Michigan.

John Rankin McElroy. I located in Jonesville, Saratoga county N. Y., on May 1, 1894, purchasing the drugs, office fixtures, etc., and good-will of Dr. E. E. Carruth. Found myself immediately launched into a country practice with a fair-sized territory and no opposition near at hand. Have had the satisfaction of seeing the practice I purchased double itself in three years and gradually increase, until now I find my time fully occupied and the territory more than I can cover at times. Have always done a general practice with no pretense toward any specialty. Have been a member of the Saratoga Springs Medical Society, the Saratoga County Medical Association, State and National Association.

John Francis McGarrahan. Am located in Cohoes, N. Y., having been here since graduation. Am a general practitioner, a member of Albany County and several local medical societies, and am attending surgeon to Cohoes Hospital. Never held political office and not interested in politics. Have had fair success. Am married since 1895 and have two children.

George B. McGraw. Was located at Poultney, Vermont, five years; am now located at Pawtucket, R. I. Am member of Vermont State, Rhode Island State, Pawtucket City and Rutland County Medical Societies. Was married in 1898 to Miss Katherine Kingman, of Kinderhook, N. Y. Was abroad in 1899. Took post-graduate course at the Rotunda, Dublin, and London. Located the latter part of 1900 in Pawtucket, R. I.

William James McKown. Am located in Albany, where I practice electro-therapeutics and X-ray work; member of Albany County and New York State Homeopathic Medical Society, vice-president of latter; am a member of staff of Albany Homeopathic Hospital; and married.

James Manning Moore. Was located at McKeesport Hospital; am now located at Albany, N. Y. Am a member of Albany County Medical Society. Was district physician for six years and coroner's physician two years.

Bernard E. Mulligan. Am located at Yonkers, N. Y. Am a member of Westchester Medical Society. Served six years as health officer and present incumbent. Am married and have one girl four years of age.

Ellwood Oliver. Located at Ancram, Columbia county, N. Y. Member of Columbia County Medical Society. Am married and have two children.

George John Ott. Located at Clinton, Mass. Am member of Massachusetts Medical Society and American Medical Association. Do a general practice, nothing unusual. Member town board of health for four years. Am married.

James Timothy Park. Was located for six months, 1894, at Sheffield, Mass. Am now located at Sandy Hill, Washington county, N. Y. Am a member of the American Medical Association and New York State Medical Association, Washington County, Saratoga County, Glens Falls, Sandy Hill and Ft. Edward Medical Societies. Ex-president Washington county. Am married and have two children, boy thirteen, girl sixteen.

Andrew Jackson Rogan. Dr. Andrew Jackson Rogan died August 9, 1901, at Crestone, Col., whence he had gone in hopes of recuperating his impaired health. After graduation he settled at North Bennington, Vt., where he acquired a satisfactory practice. Failing health necessitated his removal to Colorado, in March of the present year. At the period of his untimely demise he held the honorary position of professor of therapeutics at Crestone, Col., where, had he survived, a brilliant professional career awaited him. He was a young man of superior mental calibre and of gentle and refined personal qualities that endeared him to all with whom he associated. He is survived by five sisters, who reside in the metropolis, and one brother, Mr. James Rogan, of Oswego.

Arthur Sautter. Is practicing in Albany, N. Y., making dermatology a specialty. Is also assistant health officer of Albany.

Thomas Conant Sawyer. Was in Elbridge, N. Y., 1898-99. Am now located at 71 Washington street, Auburn, N. Y. Am a member of Auburn Medical Association. Am city physician; married, and have one daughter and two sons.

Ralph Sheldon. After graduation I took a post-graduate course in New York City. After finishing there settled in my home, Lyons, N. Y., and practiced for one year. In June, 1895, I came to Albany, and have practiced here since that time. I have never taken up a specialty, but do a general practice. Married in November, 1895, but up to this time have not been blessed with any little ones.

Fred Byron Stellwagen. Am located at Union Hill, New Jersey. Am a member of Hudson County Medical Society, North Hudson, also State. Have been surgeon for New York Chemical Works. Have practiced surgery and electricity.

C. Howard Travell. I am located at 1915 Fifth avenue, Troy, N. Y. My specialty is dermatology. I am a member of the Medical Association of Troy and vicinity, the Rensselaer County Medical Society, and a permanent member of the New York State Medical Society. Have served as dermatologist on the staff of the Troy Hospital for several years.

Fred Phillips Van Denbergh. Was located at Burlington, Vt., one year. Am now at Watervliet, N. Y. Am a member of Medical Association of Troy and vicinity, Rensselaer County, Albany County. Am attending physician at Fairview Home. Am married. Am prosperous and happy; own my own home; enjoying lucrative practice.

Milan T. Ward. I am now located at Toulon, have a good general practice that amounts to about $3,500 per year, do considerable X-ray work. After graduation I guessed a sufficient number of conundrums to entitle me to practice in the State of New York, and I located at Ellenville, but stayed there only a few months. I thought it best to move while I had enough left and get me back to Illinois. I came direct to Toulon, and have been here since. My specialty is the head, trunk and extremities. I am secretary of the Stark County Medical Society, member and ex-president of the Galva District Medical Society, member of the Illinois State Medical Society, and of the American Medical Association. I do not mix much in politics, but served two terms as mayor of Toulon. I was married before I studied medicine and still live with my wife.

Earl Wadsworth Wilcox. Was located at Earlville, N. Y., six years; am now at Norwich, N. Y. Am a member of the Chenango County Medical Society. Have a good substantial practice, and am coroner for Chenango county. Am married and have one girl aged seven.

William J. Woodruff. Dr. William Jessup Woodruff died in Providence, Rhode Island, on July 29, 1900. Was born in Pine Bush, Orange county, N. Y., on February 22, 1870. He received his early education at that place and entered upon his medical studies at the Bellevue Hospital College. He remained there one year and entered the Albany Medical College in the Fall of 1893. He graduated with the Class of 1894, and won the Vander Poel prize for the best bedside examination and an appointment as house physician and surgeon in the Albany Hospital. He left for Providence in October, 1896. In Providence he succeeded in building up an extensive practice, and was considered one of the most promising and popular physicians. Death came as the result of heart disease. In November, 1889, he was obliged to give up his practice on account of ill-health. He returned to Providence in February and resumed his work. For three weeks prior to his death he failed very rapidly, and the end was not unexpected. His father was president of the Albany Medical College Alumni Association in 1894 and died November 30, 1896. Dr. Woodruff is survived by his brother, Dr. Richard Woodruff, of the Class of 1886, and by his mother and two sisters.

O. H. Deck. Immediately upon graduating I entered the Albany Hospital as an interne, serving from May 1 to November 1, 1894. I then resigned to take the practice of a physician at Herkimer, N. Y., who had expressed a desire to sell. All negotiations fell through, and I spent the month of November on my father's farm. On December 3, 1894, I located in Herkimer, N. Y., where I still remain. I have gone through the usual ups and downs of early practice with which you are all familiar. I have been county physician one year, jail physician four years, and village and town physician three years. I am a member of the Herkimer County Medical Society, of which organization I have been president. At present I am trustee, member of the board of directors, and surgeon of the Herkimer Emergency Hospital. Am vice-president of Central New York Alumni Association of the A. M. C. I am doing a general practice, but hope to go more into surgery as the years roll by. In September, 1898, I married the daughter of my old preceptor. To us have been born two daughters, aged four and one-half years and two months.

O. H. Deck, M. D.,
Historian, Class of 1894.

The Nominating Committee, by its chairman, Dr. Scofield, then made the following report:

For President,

John H. Cotter, ('78), Poughkeepsie, N. Y.

For Vice-Presidents,

Thomas P. Scully, ('85), Rome, N. Y.
Luman B. Rulison, ('84), Watervliet, N. Y.
Alonzo T. Powell, ('89), Coeymans, N. Y.
W. Irving Goewey, ('92), Albany, N. Y.
Frederic W. Loughran, ('90), New York City.

For Recording Secretary,

J. Montgomery Mosher, ('89), Albany, N. Y.

For Corresponding Secretary,

Andrew MacFarlane, ('87), Albany, N. Y.

For Treasurer,

Robert Babcock, ('84), Albany, N. Y.

For Historian,

Eugene E. Hinman, ('99), Albany, N. Y.

For Members of the Executive Committee (term three years),

John F. Reilly, ('83), Rensselaer, N. Y.
Leo H. Neuman, ('92), Albany, N. Y.
Henry L. K. Shaw, ('96), Albany, N. Y.
James W. Wiltse, ('91), Albany, N. Y.

On motion of Dr. Bendell, the Secretary was directed to cast one ballot for the names contained in the report. The Secretary then read these names and President Craig declared the members named in the report the duly elected officers of the Association, for their respective terms.

Dr. Cotter, President-elect, was called forward by President Craig, and in a few well-chosen words expressed his thanks to the Association.

PRESIDENT-ELECT'S ADDRESS

Mr. President and Gentlemen of the Alumni Association:

I appreciate greatly this unexpected honor which you have seen fit to confer upon me in presenting me the presidency of this Association. While thanking you, I shall have to ask your indulgence if my speech seems too unprepared, as I did not expect to address you. However, it is expected that those high in office shall be ever ready for emergencies, as was "Hennessy's goat," and this recalls the story. In my town there is a street which runs parallel with and near by the New York Central railroad. On this street live the Hennessys, who own a billy goat. Billy is very unpopular in the neighborhood, and many a time the neighbors have tried to rid themselves of him, only to find that he comes off with one victory more to his credit. Last week Monday, when the clothes hung drying on the lines, Billy broke into the Grogans's back yard while Mrs. Grogan was taking her siesta, and ate up the wash. This was the final straw, and the neighbors arose in arms against Hennessy, declaring that the goat must be killed. With sorrow, Hennessy procured a rope and tied him to a tree, intending to shoot him. When he thought how long Billy had been in the family, and how often he had saved the children from danger, his heart failed him. Tears filled his eyes and he could not see to shoot. So he changed his mind. He took him to the railroad and tied him to a rail, intending that the express, shortly due, should run over him. Then he bade Billy farewell and started for home. But he had not gone far when he heard the train whistle "down brakes," and, said Hennessy to himself, "What is Billy up to now?" Looking back, he saw that Billy had thrown up Grogan's red shirt and was flagging the train,—ready for the emergency.

Again I thank you, gentlemen, and will do my best to serve you.

No other business appearing, the meeting adjourned.

COMMENCEMENT EXERCISES

The seventy-third commencement exercises of the Albany Medical College were held at Odd Fellows' Hall, on Tuesday Afternoon, May 3, 1904 at three o'clock, in the presence of a large audience. Rev. Dr. A. V. V. Raymond, Chancellor of Union University, presided, and upon the stage were seated the members of the Faculty, officers of the Alumni Association and prominent citizens.

The following was the

ORDER OF EXERCISES

Overture—"Fest" .... *Leutner*

Prayer—Rev. H. Clarke Colebrook

Music—Selection: "The Red Feather" .... *DeKoven*

Essay—Joseph Nicholas Bennett Garlick

Music—Idylle: "At Sunrise" .... *Bratton*

CONFERRING DEGREES

By Andrew Van Vranken Raymond, D. D., LL. D.
Chancellor of Union University

Music—Intermezzo: "Laughing Water" .... *Hager*

Address to the Graduating Class—Henry Hopkins, D. D., LL. D.,
President of Williams College

Music—Characteristic Piece: "Down South" .... *Myddleton*

Valedictory—George Lay Branch

REPORT ON PRIZES AND APPOINTMENTS

Dr. A. Vander Veer

Music—Two Step: "Navajo" .... *Van Alstyne*

The Graduating Class was as follows:

Palmer Romaine Bowdish	Cornwall-on-Hudson, N. Y.
George Lay Branch	East Springfield, N. Y.
Charles William Chapin	Unadilla Centre, N. Y.
Guy Forsythe Cleghorn	Green Island, N. Y.
Chester Thompson Cobb	Easthampton, Mass.
Thomas Folwell Cole	Romulus, N. Y.
John Isaac Cotter	Poughkeepsie, N. Y.
Marcus Albert Curry	Voorheesville, N. Y.
Arthur Thomas Davis	Utica, N. Y.
William Sebastian De La Hoyde	Brooklyn, N. Y.
Bransen Keemper De Voe	Albany, N. Y.
Malcolm Douglas, A. B.	Albany, N. Y.
Thomas Joseph Dowd	Cohoes, N. Y.
Silas Lorenzo Filkins	Albany, N. Y.
Leland Delos Fosbury, A. B.	Sidney, N. Y.
Joseph Nicholas Bennett Garlick	Albany, N. Y.
William Entwistle Garlick	Fall River, Mass.
Everal Caleb Haviland	Wolcott, N. Y.
Harold Eliphalet Hoyt, A. B.	Cambridge, N. Y.
George John Jennings	Ballston Spa., N. Y.
William George Keens	Albany, N. Y.
Arthur Charles Kline	Port Leyden, N. Y.
George Spencer Lape	Mechanicville, N. Y.

Harry Lovejoy Loop	Cohoes, N. Y.
Dennis Alphonsus Murphy	Gloversville, N. Y.
Robert Joseph O'Brien, Jr., B. S.	Watervliet, N. Y.
Daniel Vincent O'Leary, Jr.	Albany, N. Y.
Joseph Day Olin, A. B.	Watertown, N. Y.
John Hendry Reid	Troy, N. Y.
Burt Luverne Shaw, Ph. G.	Troy, N. Y.
Benjamin John Singleton	Glens Falls, N. Y.
Edward Augustine Stapleton	Hoosick Falls, N. Y.
Arthur Wesley Thomas	Middle Granville, N. Y.
Chester Erastus Hidley Tracy	Troy, N. Y.
Richard Henry Van Denburg	Albany, N. Y.
Frank Barton Wheeler	Troy, N. Y.
Frank Edward White	Union, N. Y.
George David Wilde	Cranesville, N. Y.
Guy Vail Wilson	Masonville, N. Y.
Maurice Wolkowitz Wolff	New York, N. Y.
Trevor Crandall Yates	New Lisbon, N. Y.

Dr. Vander Veer presented the prizes. He read a report on the Vander Poel prize, endowed by Mrs. Gertrude W. Vander Poel, in memory of her husband, the late S. Oakley Vander Poel, M. D., for many years a professor in the college, stating that this prize, consisting of a clinical microscope and accessories, offered to the senior student passing the best bedside examination in general medicine, has been awarded to Dr. J. N. B. Garlick, and that at the competitive examination for house physicians and surgeons at the Albany Hospital the following appointments had been made: Drs. J. N. B. Garlick, William E. Garlick, Joseph Day Olin, Edward A. Stapleton, Malcolm Douglass and John I. Cotter.

The prize offered by Drs. Vander Veer and Macdonald for the best report of the surgical clinics was awarded to Dr. Richard H. Van Denburg. For the second best report of these clinics, the prize offered by Drs. Hale and Morrow was awarded to Dr. William G. Keens.

The prize consisting of an ophthalmoscope, offered by Dr. Merrill for the best report of the eye and ear clinics, was awarded to Dr. Frank E. White.

The Townsend Physiological prize endowed by the late Professor Franklin Townsend, Jr., M. D., was awarded to Mr. Erastus Corning, for passing the best examination in physiology at the end of the first year of study.

Dr. Boyd's prize to the student passing the best final examination in obstetrics was awarded to Dr. Harold E. Hoyt.

The prize consisting of a case of surgical instruments, offered to the senior student passing the best final examination, by the late Dr. T. W. Nellis, was awarded to Dr. Harold E. Hoyt.

The prize offered by Dr. H. R. Powell to the second-year student passing the best final examination, consisting of a general operating case, was awarded to Mr. Charles W. L. Hacker.

A prize consisting of Gross' complete pocket case of instruments, offered by A. B. Huested & Co. to the first-year student passing the best final examination, was awarded to Mr. Erastus Corning.

The Daggett prizes, consisting of eighty and forty dollars, respectively, for the best "anatomical specimens," were both awarded to Dr. Richard H. Van Denburg.

The Daggett prize for the best "deportment irrespective of scholarship," consisting of eighty dollars, was awarded to Dr. Bransen K. De Voe, and the second prize, consisting of forty dollars, was awarded to Dr. Leland D. Fosbury.

The Alumni Dinner

The thirty-first annual dinner of the Alumni Association was held at the "Ten Eyck," on Tuesday evening, May 3, 1904, at half past eight o'clock. About one hundred and fifty were present, including members of the Association, the guests and members of the Graduating Class.

After the tables had been cleared and cigars passed, the following toasts were responded to, Dr. Joseph D. Craig acting as toastmaster:

1. "The Ideal Physician," Dr. Henry Darwin Didama.
2. "The Clergy," Rev. H. Clark Colebrook.
3. "The Legal Profession," Hon. William H. Wood.
4. "The President-Elect," Dr. John H. Cotter.
5. "The Class of 1884," Dr. Charles F. Timmerman.
6. "Union University," Chancellor Andrew V. V. Raymond.
7. "The Faculty," Dr. Albert Vander Veer.
8. "The Class of 1904," Dr. Edward A. Stapleton.
9. "The New Dean," Dr. Samuel B. Ward.

In the course of of his remarks Dr. Vander Veer entered upon the need of an endowment and new buildings. He gave the following outline of steps taken toward securing the fund for these purposes:

At a meeting of the Faculty, held May 14, 1901, Dean Vander Veer moved that a committee of five be appointed to examine into and report upon the location and construction of a new college building. Seconded, discussed and carried. Committee appointed: Drs. Vander Veer, Bigelow, Tucker, Ward and Hun.

On December 18, 1901, the Faculty was advised by Secretary Van Benthuysen, of the Board of Trustees, that the Trustees had appointed a committee, consisting of Messrs. Rosendale, Parker, Durant, Jackson and Van Benthuysen, to meet with the Faculty Committee for a new college building.

On June 19, 1903, at a meeting of the Faculty, Dr. Hun moved that it be declared the sentiment of the Faculty that of any moneys raised by general subscription two-thirds should be devoted to an endowment fund, and one-third to a building fund. This was carried.

The committee of the Faculty met December 24, 1903, and after full discussion of the following resolution, introduced by Dr. Hun, was passed:

"*Whereas,* The cost of instructing students in the science and art of medicine is steadily increasing; and

"*Whereas,* Many of the best medical schools throughout the country have lately been the recipients of large endowments;

"*Therefore,* this committee earnestly recommends that the trustees, faculty, alumni and friends of the Albany Medical College make an immediate and strong effort to raise a fund of not less than $250,000 to be used in the erection of a new building in the neighborhood of the Albany Hospital and Bender Hygienic Laboratory and in the endowment of chairs for teaching the purely scientific branches, so that the educational facilities of the school may keep pace with the general advance of medicine in the future as in the past."

This report was adopted by the Faculty February 3, 1904.

At a meeting of the Faculty April 29, 1904, on the motion of Dr. Vander Veer, the following was passed, after due discussion:

"Having in view the carrying out of the resolutions adopted by the Faculty of the College, February 3, 1904, be it

"*Resolved,* That every effort be made by the members of the Faculty that the Board of Trustees be acquainted with our plans, and their assistance solicited in the project of raising, at once, the preliminary sum of $100,000, and that when this amount is subscribed the construction of a central building be commenced."

At the close of Dr. Vander Veer's speech Dr. Root introduced the following resolution:

"*Resolved,* That the Executive Committee be requested to appoint a committee of five, two of whom shall be of their own number and three from the association at large, to act in conjunction with the Trustees and Faculty of the College, with a view of soliciting subscriptions in the manner indicated in the minute and resolution adopted by the Faculty April 29, 1904."

Dr. Root's motion was seconded by Drs. C. Harper Richardson, of Pittsfield, Mass.; W. W. Scofield, of Dalton, Mass., and Samuel B. Ward, and was then unanimously carried.

Editorial

> It is said of Diogenes, that, meeting a young man who was going to a feast, he took him up in the street and carried him home to his friends, as one who was running into imminent danger, had not he prevented him. What would that philosopher have said, had he been present at the gluttony of a modern meal? Would not he have thought the master of a family mad, and have begged his servants to tie down his hands, had he seen him devour fowl, flesh and fish; swallow oil and vinegar, wines and spices; throw down salads of twenty different herbs, sauces of a hundred ingredients, confections and fruits of numerous sweets and flavors? What unnatural motions and counter-ferments must such a medley of intemperance produce in the body! For my part when I behold a fashionable table set out in all its magnificence, I fancy that I see gouts and dropsies, fevers and lethargies, with other innumerable distempers, lying in ambuscade among the dishes.
>
> *The Spectator.* JOSEPH ADDISON.

Commencement Day, 1904

Commencement day is an annually recurring festival whose routine of business and pleasure permits little variety, and must, by repetition, show some monotony. Year after year graduates of the past assemble in the morning to listen to an address from one of their number; meet again in the afternoon as an inspiration to the young men whose careers are beginning, and to hear from some other profession an opinion of their own; and end the day at the banquet in feast and song and light veined speech. So well incorporated in the college life has the custom become, as to forbid innovation or change.

But if the form must be preserved the spirit may change. During the last three or four years a marked increase of interest has been noticeable. The attendance has been larger and the activity greater. The factors contributing to this are not easily analyzed. The popularity of class reunions is probably an important element. During the earlier years of the Alumni Association its Historian persented the records of such decennial classes and their members as he had been able to obtain. The interest in these biographical sketches was largely personal, and the reading in a general meeting somewhat tedious. In 1899, it was proposed that members of decennial classes should meet separately for comparison of experience and achievement, leaving the written record for publication. The necessary business of the Association is now promptly disposed of and adjournment is usually reached by noon, giving ample time for the class reunions. This plan has proved satisfactory and the published histories are growing more complete and exhaustive. The Association is indebted to a former historian, Dr. Harry S. Pearse, for emphasizing the value of permanent records. He left, among other documents, a complete memornadum of the service of the alumni in the Spanish-American war, as a supplement to the similar work of Dr. John B. Stonehouse in compilation of the statistics of the War of the Rebellion. Dr. Pearse's successor, Dr. Hinman, has carried on the scheme, and has perfected an arrangement of the class histories for ready reference, so that all personal records may be easily located in the college library. To Dr. Pearse and Dr. Hinman the Association owes a debt of gratitude for this painstaking work.

Another prominent feature of alumni day is the banquet in the evening. A few years ago interest flagged and the dinner was abandoned. There was a demand for its resumption, and the attendance is again large and enthusiastic. Class groups are recognized in the arrangement of the tables, and there is a growing tendency to select speakers from the membership of the Association.

Looking back over the year's work, which culminates in commencement, the friends of the college have every reason to be well pleased.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, APRIL, 1904

Deaths

	1901	1902	1903	1904
Consumption	21	18	21	16
Typhoid Fever	2	1	2	4
Measles	2	0	0	0
Scarlet Fever	1	0	4	1
Whooping-cough	0	1	0	0
Diphtheria and Croup	5	0	2	2
Grippe	5	0	2	2
Pneumonia	12	8	12	20
Broncho-pneumonia	2	4	3	3
Bright's Disease	11	17	16	15

	1901	1902	1903	1904
Apoplexy	14	6	16	13
Cancer	5	10	4	12
Accidents and Violence	8	9	13	8
Seventy years and over	21	26	32	37
One year and under	17	14	12	14

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	12	16	18	15
Albany Orphan Asylum	0	1	0	0
Child's Hospital	0	1	0	0
County House	1	4	6	6
Dominican Convent	0	0	0	1
Home for Aged	0	1	3	2
Home for Friendless	1	2	0	1
Homeopathic Hospital	1	0	6	3
Hospital for Incurables	1	0	0	2
Little Sisters of Poor	3	0	1	0
Public Places	4	0	2	2
St. Margaret's House	0	1	0	4
St. Peter's Hospital	3	2	3	0
Total deaths	156	136	169	185
Death rate	18.96	16.53	20.55	22.25

Marriages		70
Births		148
Births at term	135	
Premature births	3	
Still births	10	

Work of Health Physicians

Total number of assignments made	80
Total number of calls made	374

Inspections

In the Bureau of Markets and Milk there were thirty-five markets inspected, four hide houses, three rendering establishments, six slaughter houses, twelve public markets, twenty-three milk peddlers inspected and twelve samples of milk were taken, of which twenty-four tests were made and twenty-two were found to be above the standard and two were found to be below the standard.

The results of the ten samples of milk tested were as follows:

Butter Fats.	Temperature.	Sp. Gravity.	Corrected Sp. Gravity at 60°.	Total Solids
3.2	60°	33	33	12.3
3.8	58	33	32.8	12.9
4	58	30	29.8	12.4

Butter Fats.	Temperature.	Sp. Gravity.	Corrected Sp. Gravity at 60°.	Total Solids
3.6	50	32	30.9	12.7
3.2	58	32	31.8	12
3.8	60	32	32	12.7
2.6	50	35	36.2	12
3.2	60	33	33	12.3
3.8	54	32	32.7	12.7
3.8	60	30	30	12.2

In the Bureau of Plumbing, Drainage and Ventilation there were one hundred and fifty-seven inspections made during the past month, of which one hundred and one were of old buildings and fifty-six of new buildings. Inspections were made of twenty-nine iron drains laid, eighteen connections with street sewers, twenty-five tile drains, twenty-three cesspools, one hundred and three wash basins, thirty-one sinks, seventy-three bath tubs, twenty wash trays, three trap hoppers in yards and one hundred tank closets. There were two hundred and sixty permits issued, of which two hundred and two were for plumbing purposes and fifty-eight for building purposes. Thirty-one plans were submitted for approval, of which eighteen were of old buildings and thirteen of new buildings. Seven houses were tested on complaint, of which three were by blue test and four by peppermint test; eighteen houses were examined on complaint and sixteen water tests were made; thirty-one houses were reinspected.

In the Bureau of Nuisances there were fifty-one complaints made, of which six were of privies, seven of closets, four of drains, three of plumbing, five of water, three of filthy yards, six of filthy alleys, four of filthy vacant lots, two of filthy premises, three of manure, one of dead animals, four of garbage and two unclassified. Fifty-six inspections were made and forty-one reinspections. Nine complaints were found to have been made without cause and sixteen were found to have been abated on reinspection. Twenty-three notices were served and four citations.

Bureau of Contagious Diseases

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	3	9	4	8
Scarlet Fever	15	2	10	20
Diphtheria and Croup	74	29	22	14
Chickenpox	7	9	6	6
Measles	60	27	134	25
Whooping-cough	2	0	2	0
Consumption	1	0	2	4

Fumigations:
Houses.................... 39 Rooms.................... 95

Number of days quarantine for diphtheria:
Longest......... 55 Shortest........ 7 Average........ $19\frac{7}{10}$

Number of days quarantine for scarlet fever:
Longest......... 41 Shortest........ 12 Average........ $28\frac{4}{9}$

ANTITOXIN

Cases of diphtheria in which antitoxin was used	13
Cases of diphtheria in which antitoxin was not used	1
Deaths from diphtheria	2

DEATHS FROM DIPHTHERIA

One death was of a male four years eleven months old, sick four days, antitoxin was administered on the third day; the other death was a male one year ten months old, sick three or four days; antitoxin was not used.

BUREAU OF PATHOLOGY—BENDER LABORATORY REPORT

Cultures for Diphtheria

Initial positive	Initial negative	Release positive	Release negative
6	20	1	15
Total			42

Examination of Sputum for Tuberculosis

Initial positive	Initial negative
0	5

Society Proceedings

MEDICAL SOCIETY OF THE STATE OF NEW YORK

An invitation has been extended to the President, Dr. H. D. Wey, of Elmira, and members of the Medical Society of the State of New York by Dr. John H. Musser, President of the American Medical Association, to attend the meeting of the Association at Atlantic City, June 7th to 10th, and to take part in the scientific proceedings. Notice of this is given to the members of the Society who may desire to avail themselves of the invitation as well as to members of the County Medical Societies of the State.

F. C. CURTIS, *Secretary.*

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

The annual meeting of the Medical Society of the County of Albany was held in Alumni Hall on Tuesday evening, May 10, 1904. The meeting was called to order by the President at nine P. M. There were present Drs. Ball, Bartlett, Bendell, Boyd, Cook, Craig, Curtis, Dawes, George, Gutmann, Happel, Laird, Lanahan, Lomax, MacFarlane, Merrill, Mosher, Moston, Papen, Rooney, Stillman, Traver, Van Slyke, Wiltse.

Dr. WILTSE moved that the minutes of the previous meeting be adopted as printed in the ALBANY MEDICAL ANNALS. Carried.

Dr. J. P. BOYD reported, as chairman of the Milk Committee, that Mr. Stevens will in the future supply the certified milk of the city from his own dairy instead of that which has in the past been received from Cooperstown.

Dr. W. H. George then rendered the Treasurer's report, which follows:

To the Members of the County Medical Society, Gentlemen:

The Treasurer would respectfully offer the following report for the year:

Cash on hand at beginning of year	$110 76	
Collected during the year	170 00	
Total		$280 76
Expenditures during the year		194 22
Balance as cash on hand		$86 54

Respectfully submitted.

(*Signed*) W. H. George, *Treasurer.*

Dr. Wiltse moved that the chair be empowered to appoint a committee of three to audit the Treasurer's report. Carried. The Chair appointed Drs. Wiltse, Dawes and Moston.

Dr. Mosher, Secretary of the Board of Censors, reported in the absence of the Chairman of the Board.

Report of the Board of Censors, May 10, 1904

To the Medical Society of the County of Albany:

The Board of Censors respectfully submit the following report:

At the last report of the Censors, presented at the semi-annual meeting, on October 20, 1903, an investigation was being undertaken of a case of an alleged illegal practitioner in this city, a so-called cancer doctor, which was placed in the hands of Rollin B. Sanford, Esq., Legal Counsel of the Board. Under date of February 29, 1904, the following communication was received from Mr. Sanford:

Board of Censors, Albany County Medical Society,
J. M. Mosher, M.D., Secretary,
Albany, N. Y.

Dear Sir:—On October 12, 1903, I received from you the case of Jeremiah Richards, who lived at Waterford, N. Y., with correspondence tending to show that said Richards had practiced medicine and surgery to a considerable extent within this county without a license.

Among the papers forwarded to me there was not enough to justify me in asking for a warrant in your name. I therefore engaged the services of the Empire Detective Agency, and, with very little trouble, evidence that Richards had practiced in violation of the Public Health Law in this county in several cases was furnished to me.

I selected one of these cases which could be proved with the least difficulty and in which both medicine and surgery had been practiced, and, with the husband of the patient as the complainant of record, I secured a warrant from the Albany Police Court in your name, and on October 22, 1903, the said Richards was arraigned in said Police Court and through his attorney pleaded not guilty and elected to be tried in the

Court of Special Sessions. This action on his part took all jurisdiction away from the said Police Court and at the same time placed the matter in the hands of the District Attorney of Albany county, for in all criminal prosecution in courts of higher jurisdiction than that of the Police Court the District Attorney is the legal representative of the complainant, or rather the prosecution is in the name of the people and he is the people's attorney.

On February 2, 1904, the case was moved at Special Sessions and the defendant pleaded guilty, the District Attorney's office recommended that sentence be suspended, and such course was taken.

If this man attempts to practice here again of course it will be an easy matter to deal with him, but he promised not to again violate the Public Health Law, at least I am so informed.

I enclose bill for services rendered and for money paid to Detective Agency.

Yours very truly,

(*Signed*) ROLLIN B. SANFORD.

A meeting of the Board of Censors was held April 28, 1904, at which the following resolution was unanimously adopted, and a copy forwarded to Hon. George Addington, District Attorney of Albany county:

Whereas, it is a matter of general information that on February 2, 1904, in the case of Jeremiah Richards, on trial in the Court of Special Sessions, for violation of the Public Health Law, sentence was suspended on motion of the District Attorney, the prosecuting officer of the County of Albany;

Therefore, it is resolved, by the Board of Censors, on behalf of the Medical Society of the County of Albany, that this action is viewed with disapprobation, and the conduct of the District Attorney, on behalf of the people, is distinctly condemned.

The Physician's Register, in the County Clerk's Office, has been examined, and the following physicians have been found to have registered since the semi-annual meeting this Society, viz.: Drs. Luigi, Zito, Miles, Ambrose McGrane, William Henry Beattie and Clarence E. Simonds, all under authority of the University of the State of New York.

Respectfully submitted.

B. U. STEENBERG, *Chairman*. J. M. MOSHER, *Secretary*.
A. VANDER VEER, W. G. MACDONALD, A. H. TRAVER.

Dr. CURTIS moved that the action taken by the Board of Censors in the matter of the resolutions censuring the District Attorney receive the endorsement of the Society. Carried.

The Acting Secretary read the report of the Board of Censors on the applications for membership in the Society of Drs. Arthur J. Bedell, J. Howard Branan, Joseph A. Cox, John H. Gutmann, James N. Vander Veer and Charles K. Winne, Jr., which were approved and their admission to the Society recommended.

Dr. CRAIG moved that the Secretary be directed to cast one ballot, electing these physicians members of the Society. Carried.

The Secretary cast the ballot and the President declared the above named physicians members of the Society.

Dr. Curtis presented to the Society, in the name of the widow of the late Dr. W. H. Bailey, a portrait of this deceased member of the Society.

Dr. Bendell moved that the Society accept the gift and that the Secretary be directed to write a letter of thanks to Mrs. Bailey in the name of the Society. Carried unanimously.

Dr. Wiltse reported that the Committee of Audit had examined the Treasurer's accounts and had found them correct.

The President, Dr. C. S. Merrill, after calling Dr. Bendell, an ex-president, to the chair, delivered the annual address.

Dr. Stillman moved that the thanks of the Society be tendered to Dr. Merrill for his very interesting address, and that a copy be requested for publication in the Albany Medical Annals. Carried, and it was so ordered.

The election of officers was then in order, and Dr. Bendell, after offering a tribute to the modesty and self-sacrifice evinced on a previous occasion by his nominee, placed in nomination for the office of President, Dr. James P. Boyd. No other nominations being made, Dr. MacFarlane moved that the Secretary be directed to cast one ballot for Dr. Boyd. Carried.

The Chair, after the deposit of the ballot, declared Dr. Boyd elected President of the Society for the ensuing year.

Dr. Craig nominated Dr. Mosher for the Vice-Presidency. Dr. Bendell moved that the same mode of procedure be had as in the previous instance. It was carried, and the Chair declared Dr. Mosher elected Vice-President for the ensuing year.

Dr. Stillman nominated Dr. Rooney for Secretary and moved that the Treasurer be directed to cast one ballot for him. It was carried, and after the Treasurer had placed the ballot Dr. Rooney was declared elected.

Dr. George was nominated for Treasurer by Dr. Mosher, and after a single ballot was deposited by the Secretary he, also, was declared elected.

Dr. Curtis nominated all the present members of the Board of Censors to serve again for the ensuing year with the exception of Dr. Mosher, in whose place he nominated Dr. Dawes. Dr. Cook, however, thought that all the officers of the Society should not be from the city, but that some of the out-of-town members should be honored with office. Dr. Mosher then nominated, in addition, Drs. Archambault, of Cohoes, and Moston and Lomax. Dr. Bendell thought that the position of Dr. Cook was well taken, and, moreover, expressed it as his opinion that the present Board of Censors should not serve continuously. Dr. Traver rose to withdraw his name from consideration. Dr. Curtis suggested that the motion of Dr. Mosher be amended by the addition to the names presented by Dr. Mosher of Drs. Dawes and Traver, thus making the Board of Censors consist of Drs. Moston, Lomax, Archambault, Dawes and Traver. Dr. Craig moved that these members be elected the Board of Censors by the Secretary balloting as in the preceding instances. Carried. It was so ordered.

On motion, the Society adjourned.

C. S. Merrill, *President*.

J. F. Rooney, *Acting Secretary*.

Medical News

Edited by Eugene E. Hinman, M. D.

ANNUAL MEETING OF ALBANY MEDICAL COLLEGE ALUMNI ASSOCIATION.—The thirty-first annual meeting of the Association of the Alumni of the Albany Medical College was held in the college May 3, 1904. After the general meeting the decennial classes, '54, '64, '74, '84 and '94, held reunions. The annual dinner, which was held in the evening at Hotel Ten Eyck, was a success in every way and was very largely attended.

SEVENTY-THIRD COMMENCEMENT OF THE ALBANY MEDICAL COLLEGE.—The Seventy-third Commencement of the Albany Medical College was held at Odd Fellows Hall, May 3, 1904. Chancellor Raymond conferred the degree, and the address to the graduating class was to have been made by Dr. Henry Hopkins, president of Williams College, but being unavoidably detained, his address was read by Dr. S. B. Ward. The class numbered forty-one.

DR. WARD ELECTED DEAN.—Dr. Albert Vander Veer, who has been the dean of the faculty of the Albany Medical College for a number of years and also a Regent of the University of the State of New York, under a new law has been compelled to resign the deanship in order to remain a member of the Board of Regents. The resignation was recently accepted by the faculty and Dr. Samuel B. Ward was elected to fill the vacancy.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR; STATISTICS FOR APRIL, 1904.—Number of new cases, 103. *Classification of cases:* Dispensary cases receiving home care, 3; district cases reported by health physicians, 9; charity cases reported by other physicians, 44; patients of limited means, 47; old cases still under treatment, 32; total number of patients under nursing care, 135. *Classification of diseases* (new cases): Medical, 22; surgical, 8; obstetrical, 67; dental, 3; transferred to hospitals, 4; deaths, 7.

Special Obstetrical Department: Number of obstetricians in charge of cases, 4; medical students in attendance, 12; Guild nurses in attendance, 6; patients, 9. Number of visits made: by head obstetrician, 19; by attending obstetricians, 15; by medical students, 66; by Guild nurses, 115; by consulting obstetricians, 2.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, 919; for supervision of convalescents, 184; total for the month, 1,103.

ALBANY HOSPITAL TRAINING SCHOOL.—The graduating exercises of the Training School for Nurses of the Albany Hospital were held on the evening of May 14, 1904, at the Female Academy. The exercises opened with prayer by Rev. Edward P. Johnson, of Albany, and after several local selections had been very pleasingly rendered the class listened to an address by Dr. Henry M. Hurd, superintendent of the Johns Hopkins Hospital, of Baltimore, Md. Hon. William L. Learned presented the diplomas, and the exercises were brought to a close by the pronouncing of the benediction. The class numbered fifteen.

DEATHS.—Dr. JAMES A. MOWRIS, of the Class of 1853, died at his late home, LaFayette, N. Y., September 1, 1903, aged 78 years.

—Dr. NELSON FANNING, of the Class of 1859, died at his late home, Catskill, N. Y., May 17, 1904, aged 63 years.

—Dr. AGUSTUS A. GUY, of the Class of 1893, died at Harpursville, N. Y., March 30, 1904, aged 44 years.

—Dr. WILLIAM L. PURPLE, of the Class of 1875, died at Albany, N. Y., May 25, 1904.

IN MEMORIAM

AUGUSTUS A. GUY, M. D.

Dr. Augustus A. Guy, of the Class of 1893, died at his home, Harpursville, N. Y., March 30, 1904. His early life was spent in the village where he had passed most of his life. Attaining manhood he decided to follow in his father's footsteps and become a doctor. He attended the Albany Medical College and after graduating took courses in medical colleges in Detroit and Baltimore. Returning home he practiced for two years in Coventry, N. Y., but his father's failing health decided his return to his old home, and accordingly he opened his office in Harpersville, where he remained until the time of his death. Dr. Guy was married August 15, 1901, to Miss Julia Webster, of Nineveh, N. Y. A year ago a rapid form of consumption developed and resulted in his death.

ERASTUS E. MARYOTT, M. D.

Dr. Erastus Edgar Maryott was born in North Stonington, Ct., September 29, 1845. He was the son of Rev. Ichabod B. and Almira Maryott, the former a Baptist clergyman of Huguenot descent and the latter a descendant of an old colonial family whose father participated in the battle of Stonington.

After he had fitted for college at the Connecticut Literary Institute at Suffield, Dr. Maryott entered Brown University, from which he graduated in 1870. Among his classmates were Dr. E. Benjamin Andrews, Prof. Alonzo Williams, John M. English and Isaac Nelson Ford, foreign (now war) corespondent of the New York *Tribune*. Three years after his graduation he received the degree of Master of Arts from Brown. Upon the completion of his collegiate course he entered the ministry, but later matriculated at the Albany Medical College, graduating in 1882. He first located at Berlin, N. Y. In 1883 he moved to West Springfield, Mass., where he practiced three and a half years, then removing to Springfield, where he remained till 1899. While in Springfield he was a member of the Massachusetts Medical Society and of the Hampden District Medical Society, of which he was president in 1895; the American Academy of Medicine and the American Academy of Political and Social Science. In the Fall of 1900 he removed to Coxsackie, N. Y., remaining there until his death, February 28, 1904, which was caused by a fall on an icy pavement, striking his head. Everything was done to save his life, but coma soon set in and in a few hours he had passed to his reward.

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ALBANY
MEDICAL ANNALS

Original Communications

EYE SYMPTOMS INDICATIVE OF GENERAL DISEASES.

The President's Address to the Medical Society of the County of Albany, May 10, 1904.

BY CYRUS S. MERRILL, M. D.,
Professor of Ophthalmology and Otology, Albany Medical College.

Members of the Society:

In asking you to consider for a few moments this evening certain eye symptoms that are indicative of general diseases, I have endeavored to select a subject that would not only have close connection with the specialty, which it has been my pleasure to practice for over thirty years in this city, but would also be of interest to you as general practitioners. So intimate and close is the relation between eye diseases and certain general diseases, that not infrequently the eye symptoms are the first indication of the general malady and the family physician who overlooks, or does not grasp the proper significance of these early eye symptoms, will lose the opportunity of combating the general disease in its early stage, where proper advice and appropriate medication will be of the most benefit. Of even greater importance is it, that the ophthalmologist should recognize that such eye symptoms are secondary to, and caused by the general disease, otherwise he may, by confining his treatment to local medication of the eyes, neglect the cause of the trouble and fail to benefit his patient.

So important is a thorough knowledge of general medicine to the ophthalmologist, that he should have some years of experience as a general practitioner before engaging in the special work. The more experienced the ophthalmologist may be in general medicine, the more expert and successful he will be in his special work, and the better prepared the general practitioner may be to recognize certain conditions of the eyes, and to realize what they indicate, the more certain he will be to make accurate diagnoses.

We will consider the various tissues and appendages of the eye in order, and note the changes in them that are often diagnostic of certain general diseases.

By watching the movements of the eyelids we sometimes discover symptoms diagnostic of Basedow's disease, exophthalmic goitre, a disease characterized by enlargment of the thyroid, rapid heart action and exophthalmos, though any of these symptoms may be lacking. The one symptom that is most constant is Graefe's sign, where the upper lid fails to follow the motion of the eye-ball, and lags behind the corneal margin. Sharkey found this symptom absent only in two per cent. of a large number of cases. Formerly this condition was supposed to be due to a spasm of Mueller's muscle; but as the installation of cocain in a normal eye will produce the same symptom, and since in exophtholmic goitre there is a partial abolition of the sensibility of the cornea, it seems proper to conclude that the Graefe's sign is of peripheral origin and caused by loss of corneal touch-sense. Under normal conditions we wink about ten times per minute, but in exophthalmic goitre this action is reduced to five and even to twice each minute. This, also, is supposed to be due to impairment of corneal sensibility.

In the conjunctiva we look for discolorations, such as are produced in jaundice, and the peculiar tint found in anæmia and chlorosis. Where we have an inflammation of the subconjunctival tissue and superficial layers of the sclera we suspect rheumatism or syphilis. The spontaneous rupture of conjunctival vessels, though trivial in itself, indicates the condition of the walls of the blood vessels and suggest the possibility of similar accidents occurring in the brain. The intact conjunctiva is never infected by tubercle bacilli; there must always be a loss of substance, due to injury or ulceration. When such broken surface has become infected, tubercular ulcers may develop with infiltrated base and bleeding granulations. In other cases the conjunctiva is attacked secondarily, either by the propagation of the tubercle bacilli from adjoining tissue or by means of emboli. The appearance of such an ulcer of the conjunctiva is very suggestive of tuberculosis, but a definite positive diagnosis can only be made by the aid of the microscope.

In the cornea we often see, especially in children, an acute vascular formation near the corneo-scleral junction, a phlyctenular keratitis, and it suggests improper nourishment of the child—adenoids and inflammation of the naso-pharynx. There are generally excessive photophobia and lacrymation and the appearance of the eye is so characteristic that an error in diagnosis cannot well be made, but a great error will be made in treatment, if a cure is attempted by local applications alone. The cause, whether it be in the inflamed nasal mucous membrane or in the debilitated condition of the patient, should be discovered and proper general treatment resorted to.

Interstitial keratitis is the other affection of the cornea that is almost diagnostic of a constitutional disease—inherited syphilis. This form of corneal inflammation is characterized by a diffuse vascular inflammation of the deep layers of the cornea, generally occurs about the age of puberty and usually attacks both eyes. This disease is often very severe in its course, the inflammation involving both the iris and ciliary body, and if the attending physician should fail to recognize the cause and neglect to resort to the proper constitutional remedies the result would be disastrous to vision.

In the iris we may have manifestations of rheumatism, syphilis, gonorrhœa, tubercle and sarcoma. Often it is possible to diagnose the constitutional trouble from the character and progress of the inflammation of the iris. When due to syphilis the exudation is much more profuse, and the pain much less severe than in iritis from other causes, and the ciliary body, choroid and vitreous are much more apt to become involved. We often see little gummata near the pupilary margin of the iris, little yellowish brown vascular tumors. In rheumatic iritis the pain is more severe and neuralgic in character and the exudation much less than in the syphilitic.

The tumors that develop in the iris are either tubercle, sarcoma or syphilitic, and it is not always easy from the appearances of the growths to make a differential diagnosis between them.

A careful study of the reactions of the pupils will afford much assistance in arriving at an accurate determination of many lesions in the nervous system. McEwen points out that in investigating pupil reactions six possibilities suggest themselves: "(1) the action of drugs; (2) ocular diseases or ocular defects; (3) spinal or sympathetic lesions; (4) localized cerebral lesions;

(5) abeyance of brain function; and (6) cerebral irritation."

To ascertain in which portion of the path of the pupil-reflex the lesion is situated, Magnus has divided it into three portions:

(*a*) The centripetal part, including the optic nerve, chiasms, tracts, and connecting fibres to the cortex. If there is an interruption of the conducting power of the right optic nerve, illumination of the pupillary area on that side does not produce either the direct or the consensual reflex action of the pupil; but if the left eye be illuminated a direct reflex action will be produced in it, and consensual reflex action in the right. If the interruption occurs in the chiasm and the tract, there is half blindness of the visual field—hemianopsia. In uncomplicated diseases of the centripetal portion of the optic-reflex area, illumination of both eyes never produces unequal pupillary reaction. If Meynert's fibres, which amount to about one-third of the entire cross-section of the optic nerve, be involved, both pupils may fail to react to light, or both pupils may react alike, although there may be complete blindness. Where there is half-blindness, if light be reflected into the eye upon that side of the retina where the function is perfect, the pupil will contract if the lesion be anterior to the primary optic ganglia, but if the light be reflected upon the blind side there will be no contraction. This is called Wernicke's symptom. If the pupillary light reflex be intact, the lesion must be located higher up, in the optic thalamus, the internal capsule, or even in the cortex of the brain itself.

(*b*) The part of the reflex ring which carries the light impulses from the corpora quadrigemina to the oculo-motor nuclei (Meynert's fibres). If both sides are affected, neither pupil reacts to light, but there is normal reaction to convergence and accommodation. This is the well-known Argyll-Robertson pupil.

(*c*) The centrifugal portion of the reflex ring, that is, the nucleus of the sphincter of the iris, the third nerve, and the termination of the third nerve in the iris. If the right nucleus is affected, the direct light-reflex of the right pupil is abolished, and also its consensual or indirect reflex. The reflex action of the left eye is found to be normal, and if a light be reflected into the right or affected eye, the indirect or consensual reflex action takes place in the left, but may be lessened in degree. Although the right pupil is wider than the left, yet both act normally to convergence and accommodation. If the trunk of the right oculomotor nerve is affected, there is pupillary immobility under the influence of light directed into it, and loss of accommodation; the consensual reflex of the right is also lost when light is reflected into the left. Like symptoms occur if the peripheral fibres of the nerve at their termination are affected upon one side.

Let us now consider what conclusions are suggested by the three conditions in which the pupils may be found, viz.: (1) anisocoria or inequality of the pupils; (2) mydriasis, or dilatation of the pupils; and (3) myosis, or contraction of the pupils.

Anisocoria may have existed throughout life as a personal peculiarity. Fuchs says: "Inequality of the pupils is always pathological, that it can never take its origin from the centripetal fibres (optic-nerve fibres), but it is always caused by a disturbance in the centrifugal channels (oculo-motor nerve and its centre)." It may be caused by adhesions, and occurs as a temporary and variable symptom in degenerative diseases of the spinal cord and brain. It is one of the symptoms of complete or partial paralysis of the oculo-motor nerve. Unequal pupils may occur in *amblyopia ex anopsia,* where the refraction of one eye is widely different from that of the other, and also in blindness.

Mydriasis may be caused by drugs, such as atropine, strong mental excitement, blindness, anæmia, aortic insufficiency where arteries are badly filled, lesions in the oculo-motor nerve and in the upper part of the spinal cord, in forced expiration, in vomiting, and it is said to be present in persons of low mental development.

Dilatation of the pupil when of cerebral origin indicates extensive lesion; when of spinal origin it indicates irritation.

Myosis indicates lesions of the spinal cord, of the brain and its membranes, hyperæmia attending acute fevers, plethoric and congestive states, as in mitral regurgitation and bronchitis, chronic tobacco poisoning, and adhesions from old iritis.

If the myosis is of cerebral origin, it indicates irritation of the part; if of spinal origin, a depression or destruction of the part. This is just the opposite of mydriasis. Spinal myosis occurs in lesions of the cord above the dorsal vertebræ, and is especially noteworthy in locomotor ataxia, where one finds the Argyll-Robertson pupil; and this symptom, together with the absence of patellar reflex, is of great value in the diagnosis of this disease; as both these signs, the Argyll-Robertson pupil and the absence of the petellar reflex, make their appearance very early in the disease.

In general paralysis of the insane inequality of the pupils usually exists and von Graefe believed that a varying inequality of the pupils was a serious premonitory symptom of insanity.

During the administration of an anæsthetic, the pupils should receive careful attention, as their condition varies in the four stages of the anæsthesia. In the first stage, disordered consciousness and analgesia, the pupils are dilated; in the second stage, unconscious reflex activity, they are smaller; in the third stage, surgical anæsthesia or coma, they are larger; in the fourth stage, bulbar paralysis, they are widely dilated. The pupils are smaller under chloroform than under ether, and the physician should recognize it as a sign of grave danger if, when under an anaesthetic, the pupils become, suddenly, widely dilated.

In the crystalline lens we find little of diagnostic import, except that the rapid increase of cataract formation in youth or middle age indicates diabetes.

The vitreous is more interesting, for we know that an inflammation of the vitreous humor, occurring before advanced age, indicates syphilis as the cause and suggests the appropriate treatment. The vitreous is also interesting as occasionally being the home of parasites, the *cysticercus cellulosæ* and the *filaria sanguinis hominis.*

An ophthalmoscopic examination will often reveal much in the optic nerve and retina to aid the careful diagnostician.

A haziness of the retina due to œdema and inflammatory exudation, congestion of the optic disc with blurred outline, tortuosity and enlargement of the retinal vessels, with or without hemorrhages, is the picture of retinitis and generally is suggestive of nephritis, or syphilis. The additional ophthalmoscopic appearances that are characteristic of albuminuric retinitis are the small white spots, star shaped in arrangement at the macula, and larger near the optic disc, and the extensive retinal hemorrhages. Retinitis is a late symptom in kidney disease, but often it is the first that calls attention to the nephritis.

The optic nerve papilla may present the appearance of congestion, inflammation or atrophy; the congestion being shown by increased redness of the disc, and often is due to eye strain, excessive use of eyes, strong glaring light, or it may be the beginning of an inflammation of the optic nerve.

In inflammation of the optic nerve the papilla is much swollen, enlarged and of whitish color, its margins are entirely obliterated, the retinal vessels are interrupted in places, the veins engorged and tortuous, the retina congested and œdematous, having many white patches and hemorrhages. This "choked-disc" picture is most frequently caused by brain tumor. (It is found in ninety per cent. of the brain tumor cases), and the next most frequent cause is meningitis.

The opthalmoscopic picture of atrophy of the optic nerve shows the disk white, grayish or bluish white, its edges clearly defined and its surface presenting a saucer-shaped excavation.

Atrophy of the optic nerve occurs in brain and spinal cord affections. It is an early symptom in one-third of the cases of locomotor ataxia. It may be due to syphilis, malaria, diabetes and certain poisons.

I trust that a consideration of these important eye symptoms may enable some of you to make accurate diagnoses in what otherwise might be doubtful cases.

COMPLICATIONS AND DEGENERATIONS OF UTERINE FIBROMYOMATA.

A PATHOLOGICAL AND STATISTICAL STUDY OF TWO HUNDRED AND EIGHTY CASES.

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INTRODUCTION

Recent discussions in the surgical and gynecologic branches of the American, British and French medical organizations, indicate a renewed interest in the question of treatment of uterine fibromyomata. This is due largely to facts brought forth as the result of the systematic routine pathologic examination of all "fibroid" tumors. The frequency with which fibroid tumors present degenerations and are accompanied by complications has upset the classical teaching in regard to prognosis and treatment of these growths. More particularly has interest been stimulated in regard to the so-called "malignant degenerations," as is evidenced by the prominent place which carcinoma and sarcoma occupy in recent publications on myoma. At present, however, the results of pathologic studies are not definitely collected, and there is a lack of statistical comparison. The importance of bringing together such results is evident, for the question of operative interference and extent of operation must depend on information derived from combined clinical and pathologic reports. In regard especially to the extent of operation are the results of pathologic investigation of value. While in the removal of a benign tumor it is without doubt ideal that the patient should suffer as little mutilation as possible, still that operation must be done which offers the least danger, and at the same time takes into consideration the various attendant complications. On this point recent investigations indicate that the complications of myomata are by no means to be lightly considered.

Aside from the tumor itself, the adjacent organs must be taken into account. The question of the condition of the ovaries is important from the fact that in supravaginal hysteromyomectomy the trend of opinion among gynecologists is that an ovary should be left in order to ameliorate the severe menopausal symptoms sometimes produced by complete ablations. For this reason the microscopic study of these organs is important in order to determine the frequency of disease of the ovary in connection with myoma.

Also, after hysteromyomectomies and myomectomies, the possibility of infection from a diseased tube is of importance, not only as concerns the union of the wound, but also as regards the mortality of these operations. Hence the examination of the tubes for salpingitis, pyosalpinx, etc., is of no slight value.

In the study which is here presented, an attempt has been made to determine the frequency of the various degenerations and complications and to base thereon certain general conclusions concerning treatment.

GENERAL LITERATURE

Since Martin[1] in 1888 made his study of degenerations in 205 cases of fibromyomata, others have reported similar series, notably Noble,[2] 258 cases; Cullingworth,[3] 100 cases; Mary Scharlieb,[4] 100 cases, and Frederick,[5] 125 cases. Combined, these make 788 cases available for the classification as to degenerations. There is some slight difference in the classifications of the five writers, but by taking certain liberties with their tables,* the degeneration may be summarized as follows:

Fatty degenerations	7
Calcareous infiltration	11
Necrosis	55
Cystic degeneration	34
Telangiectasis	46
Sarcoma	17
Associated carcinoma cervicis	15
Associated carcinoma corporis	17
Myxomatous (edematous)	8
Associated syncytioma[7]	1

(Total number of cases, 788.)

Martin has not estimated his complications; so for the purpose of that classification only the series of Noble, Cullingworth, Mary Scharlieb and Frederick are available. They are as follows:

Appendicitis	13
Hydrosalpinx	41
Hematosalpinx	2
Ovarian cyst	32
Dermoid cyst	5
Ectopic pregnancy	4
Papillary carcinoma of ovary	2
Pyosalpinx	18
Salpingitis	10
Abscess of ovary	7
Tubo-ovarian abscess	1
Dilated ureters and hydronephrosis	1
Dilated ureter, hydronephrosis and pyelitis	1
Parovarian cyst	3

*In this table associated tumors are arbitrarily included. Martin's ten cases of suppuration are placed under necrosis. Noble's case of syncytioma is retained, although there is some doubt from the pathologic report as to whether there was a fibroid associated with the new growth. This tumor was twice reported. The following extract is from the second publication, pathologic report by Dr. Babcock: "In the early description of the growth it was described as a sarcomatous or endotheliomatous degeneration of a fibroid tumor; but restudy gives no evidence that fibromuscular tissue is present more than would accompany the growth of the syncytial tumor. It is believed that this is a primary syncytioma malignum in a uterus not the seat of any other tumor."

Cystic ovaries	18
Hematoma of ovary	1
Tubercular peritonitis	1
Universal adhesions	22

(Total number of cases, 583.)

In making this compilation a great difference in classification was apparent. Frederick and Mary Scharlieb alone mention cystic ovaries. Cullingworth in his 100 cases does not mention salpingitis. Many complications of a purely clinical nature, as retroversions of the uterus, etc., have been eliminated in order to bring classification in accord with that of this paper.

In a more recent publication, Daniels[8] in 124 cases found pathologic lesions in the appendages or their immediate neighborhood in seventy-two; in seventy cases of complicated fibromyomata lesions confined to the ovary in twenty-eight, tubes in twelve, and both in thirty.

Marscher[9] in twenty-two cases of myomata found ectopic pregnancy in one and suppurative diseases of the appendages in four.

Bond[10] reports fifty cases, in which eight had tubal disease, which he claims was due mainly to infection from miscarriage.

Hunner[11] in a series of 100 consecutive cases occurring in Kelly's service found pyosalpinx or tubo-ovarian abscess in six cases, hydrosalpinx or perisalpingitis in fifteen cases and ovarian cysts in nine cases. There was found in association malignant disease in seven cases, sarcoma two, adenocarcinoma of the fundus three, and squamous carcioma of cervix in two.

Other writers have reported smaller series of cases or series devoted to one complication as appendicitis[12] or salpingitis[13]. As these reports do not include all complications they have not been quoted.

From this summary it will be seen that the complications of fibromyomata are many and varied. It will be noted that tubal complications form a very large percentage in Daniel's series, while in the combined series they are not prominent; also in the latter series pyosalpinx is numerically greater than salpingitis. This may, I think, be explained by the fact that the earlier writers did not have a complete microcsopic examination of the condition of the tubes. Frederick mentions cystic ovaries which occurred in about fourteen per cent.

of his cases. Mary Scharlieb estimates ovarian cysts and cystic ovaries together as twenty-three per cent.

In regard to associated malignant tumors in the combined series, carcinoma occupies a relatively high place. No distinction is made between "sarcomatous degeneration" of a myoma and of sarcoma associated with myoma except in Martins's paper. Of the more recent publications on sarcomatous degeneration of fibroids, Baker and Graves[14] publish thirty-three cases of fibroid tumors, in which three were sarcomatous. The percentage is truly large; but this is similar to the findings of Ulesko-Stroganowa,[15] who reported before the Russian Society for Obstetrics and Gynecology, March 22, 1902, 100 cases of fibromata with ten cases of malignant degeneration. From the description these are evidently divided into two groups, leiomyoma malignum and true sarcoma. It is not quite clear what is meant by the former. In the discussion which followed, her views were generally opposed. From the abstract of her paper it is impossible to say how many of these were really sarcomatous.

Tate[16] and Bertha Van Hoosen[17] each report a case of sarcomatous degeneration of fibromyoma, which will be referred to later under the special heading.

From these papers it will be seen that "sarcomatous degeneration," while not common, is sufficiently so to merit further study; first, in regard to its frequency, and second, as to whether it is a true transformation of a myoma or merely an associated but independent growth.

MATERIAL

The material on which this study is based* represents seven years' service of a general hospital (Albany Hospital), and includes all myomata removed during that time. Complete gross and microscopic examinations have been made in all cases. The series also includes 26 cases in which myomata were found at autopsy.

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*I wish to express my thanks to the operators from whom these cases came, more particularly to the surgeons of the Albany Hospital. I also wish to express my gratitude to Dr. Blumer, late director of the Bender Laboratory, and to his assistants, whose conscientious routine examinations and exhaustive records have made this report possible. I also wish to express my sincere thanks to Dr. R. M. Pearce, present director of the laboratory, for constant assistance and encouragement.

SUMMARY OF 280 CASES OF FIBROMYOMATA.

Character:—	
Single	110
Multiple	170
Small	79
Medium	59
Large	99
Very large	43
Subserous	67
Interstitial	85
Submucous	23
Combined	105
Degenerations—	
Slight hyaline	18
Moderate hyaline	32
Marked hyaline	19
Hyaline and calcareous	8
Calcareous	14
Calcareous, necrotic, hemorrhagic	2
Cystic	8
Myxomatous	4
Hemorrhagic	6
Necrotic	4
Necrotic and hyaline	3
Necrotic, cystic, infected	1
Adenomyoma	6
Associated with adenocarcinoma	6
Associated with squamous cell carcinoma of cervix	2
Sarcoma	3
Deciduoma malignum	1
Complications—	
Ovarian cysts	15
Parovarian cysts	2
Cystic degeneration of ovaries	55
Tubo-ovarian cyst	1
Calcification of ovary	1
Ovarian fibroma	2
Ovarian carcinoma	2
Salpingitis	38
Salpingitis and hydrosalpinx	3
Salpingitis and tubo-ovarian abscesses	3
Pyosalpinx	5
Pyosalpinx and tubo-ovarian abscesses	2
Extra uterine pregnancy, salpingitis and hydrosalpinx	1
Hydrosalpinx	6
Hydrosalpinx and tubo-ovarian abscess	1
Autopsies—	
Total number	26
Deaths due to tumor	2

PATHOLOGY

Character.—All these variations in fibroid tumors are familiar to operators and pathologists. "Multiple" in this series is taken to mean more than one tumor. The division as to size has been based on the following scale: Small, up to four centimetres; medium, four to eight centimetres; large, eight to sixteen centimetres; very large, above sixteen centimetres in diameter. In multiple tumors the diameter of the largest tumor was taken as the determining factor. The largest tumor noted weighed ninety pounds, and measured roughly 50x40x20 centimetres. The tumor was single, showed considerable necrosis and calcareous degeneration, and caused pressure symptoms which brought on the death of the patient. It was removed postmortem. Several other tumors were noted between forty and fifty pounds. It will be noted that 142 tumors measured more than eight centimetres in diameter.

The analysis as regards position was not easy, as it is not always plain into which of the classes a tumor should go. I regret that there is excluded a most important class of broad ligament fibromyomata, of which the data at hand would not allow a proper estimation.

By "combined" is meant multiple tumors, one each of which may be classed in one of the divisions. Thus it is seen that there are sixty-five multiple tumors which fall into one class (always interstitial or subserous), and 105 multiple which fall into at least two classes.

In one case of multiple fibromyomata a medium-sized fibroid had become detached from its pedicle and lay retroperitoneally, being nourished by the mesenteric vessels. Similar cases have been reported by Alban Doran[19] and others.[20]

The comparative infrequency of submucous myomata is noticeable.

Simple Degenerations.—In tumors of such size (142 above 8 centimetres diameter) it is remarkable that a large number with degeneration, particularly with hyaline degeneration, was not met with. The combination of hyaline and calcareous degeneration in eight cases is of interest. It would seem that the tendency of the these tumors is to undergo progressive hyaline change going on to calcareous degeneration.

The twenty-three examples of calcareous degeneration existed in old women, one being below fifty. These varied in consistence from those of the "Wombstone" type, ten centimetres across, to those with discrete, moderate calcareous deposits.

In the consideration of cystic degeneration, as Alban Doran[21] shows, a distinction should be made between true cystic degeneration and necrosis going on to cavity formation. In this series, however, his standard of judgment that a "fibroid is not truly cystic unless it includes a cavity containing half a pint of fluid," has not been adhered to, but tumors with smaller cavities have been judged as truly cystic. There were no cysts of large size found, the largest containing approximately 1,000 cubic centimetres of fluid. Cystic degeneration is more especially interesting from the fact that of Graves' four cases of cystic degeneration three were sarcomatous, evidently a necrosis going on to cyst formation. Mary Scharlieb's series shows six cases of sarcomatous degeneration, and of these three were cystic.

Necrosis and Inflammation.—All stages of inflammation and necrosis were noted. Necrosis occurred mainly in large subserous tumors, and was evidenced, on section, by brownish-yellow areas. There was usually considerable associated odema. In four cases this went on to liquefaction of the central area. It is interesting to note in regard to the possibility of infection that two cases were associated with salpingitis and two with hydrosalpinx. One large submucous tumor with multiple interstitial nodules was necrotic and sloughing. In all cases of sarcomatous degeneration, hemorrhage and necrosis were noted.

Adenomyoma.—The percentage of these tumors is about that usually found. They offered in this series nothing of special remark in the gross appearance. One showed marked hyaline change and one calcareous degeneration.

Malignant Changes.—Sarcomatous degeneration was found in three cases. There was no definite appearance by which these sarcomatous changes could be recognized. The main characteristics were necrosis, with broken-down areas and discolored spots from recent and old hemorrhages. A yellowish-white glistening growth could be distinguished in one case infiltrating the muscle and surrounding the necrotic areas. During the period from which these reports were taken six cases of sarcoma of the uterus occurred, in addition to these three cases of sarcomatous degeneration of uterine fibroids.

In case one it was possible to make a diagnosis in the gross specimen, as the disease had infiltrated the uterine tissue and gave a semi-necrotic appearance with irregular, hemorrhagic, pinkish areas devoid of fibrous arrangement, and a shell of malignant tissue infiltrating the tumor.

Cases two and three were also necrotic, soft and friable, and in the macroscopic examination were taken for necrotic fibroids.

Chorio-epithelioma infiltrated one case of fibroid tumor. This is, so far as is known, the first authentic instance of such invasion reported. Complete reports of these four specimens from the records of the Bender Laboratory follow:

Case I.—Mrs. M. N. Specimen consists of uterus with tubes and ovaries. One tube and ovary are separate from the rest of the specimen, the tube having been amputated at the junction with the uterus.

Uterus.—The uterus is greatly enlarged and measures 19 cm. long and about 14 cm. in diameter. Except for an irregular area about 7 cm. in diameter corresponding to the fundus, the peritoneal surface is everywhere covered with firm adhesions. Near the superior surface of the fundus are two globular tumor masses the size of a cherry, which are attached to the body of the uterus by a slender pedicle of peritoneum and fibrous connective tissue. Near the above tumor can be seen a pea-sized submucous tumor similar to the above. On section these tumors are pearly white with fine whorls of connective tissue. Adjacent to the origin of the attached tube projects a tumor mass about 3½ cm. in diameter which is soft and on section shows a thin capsule with central contents similar to that of the cavity of the uterus. On section the cavity of the uterus is found to be filled with a necrotic mass, the core of which is the size of an orange, and of a pinkish, yellow color with the consistency of liver tissue. This central mass shows whorl-like markings suggesting the cross-section of a large fibromyoma. Extending from the central core and infiltrating into the muscular coat is a stratum of extremely friable tissue from 2 to 4 cm. in thickness. This stratum is throughout semi-necrotic and shows irregular hemorrhagic areas, while at the outer border is an irregular zone which on section presents a jelly-like whitish glistening surface. The muscular coat of the uterus is under considerable tension, retracting rapidly when cut. This muscular coat has an average thickness of about 5 mm., but in many places is not over 2 mm. in thickness. The boundary between the muscular and semi-necrotic mass is nowhere sharply drawn, so that the muscular coat appears to be infiltrated by the mass lying beneath it. Near the fundus of the uterus, the muscular wall is much thicker than elsewhere. On section there is disclosed a definitely encapsulated tumor mass the size of a hen's egg which readily separates from the capsule and presents on section a soft, dark red, irregularly mottled surface. It is connected by a broad isthmus to the mass occupying the cavity of the uterus.

Tubes.—The attached tube is markedly congested, but otherwise apparently normal. Opposite tube is the same.

Ovaries.—The attached ovary is cystic throughout, having numerous cysts ranging from the size of a pigeon's egg to that of a pea, the substance of the ovary being crowded to one side. Opposite ovary shows very many cysts ranging from 2 to 10 cm. in diameter. These cysts contain clear straw-colored fluid.

Anatomic Diagnosis.—Sarcoma of uterus with necrosis and hemorrhage.

Microscopic Description.—Tissues, uterine wall, ovary, polypoid tumor described in gross description. Uterine wall: Sections taken through portion described as capsule in gross description show smooth muscle infiltrated with masses of spindle-shaped cells having large clear staining vesicular nuclei and little protoplasm. Among these cells are seen large irregular cells, the nuclei of which have a lobulated outline. Indistinct mitotic figures are seen in some of the cells. These cells have an utterly lawless arrangement, and deeper in the sections they form a continuous mass containing numerous thin walled blood vessels. Many of the sections show hemorrhagic areas with red blood corpuscles in various stages of degeneration. Some sections show simply masses of necrotic cells.

Polypoid Tumor.—Body of tumor shows smooth muscle largely replaced by fibrous tissue, while the pedicle of the tumor is seen to be infiltrated with cells similar to those described in tumor of the uterine wall.

Ovary.—Shows large follicular cysts and corpora lutea undergoing organization.

Microscopic Diagnosis.—Uterus with fibromyomata invaded by spindle-celled sarcoma; necrosis; hemorrhage; follicular cysts of ovary.

CASE 2.—Miss S. A. T. Specimen consists of an irregular mass of tissue composed of uterus and appendages and measures 18 x 13 x 7 cm. At one portion is attached a normal Fallopian tube, which measures 11 cm. in length, and an ovary 1 x 2 x 2½ cm. which has undergone fibrous change. On section the irregular surface of the mass is found to be due to the presence of large, roughly spherical tumors, varying in size from 2 to 11 cm. in diameter. The original form of the uterus can not be made out. The cavity of the uterus is pale and covered with a somewhat sticky secretion. The tumor masses which lie in the myometrium, on section, have the characteristic appearance of myomata; one of the large tumor masses has undergone degeneration, is soft and friable, and contains a considerable amount of blood. Immediately beneath the serous coat are a number of small pedunculated tumor masses which average 1 cm. in diameter. On section these are similar to the large tumor masses.

Anatomic Diagnosis.—Multiple interstitial and subserous myofibromata of the uterus. Normal Fallopian tube. Fibroid ovary.

Microscopic Description.—In places a definite picture of fibromyoma may be seen. Adjacent to such areas and differentiated from it only by the difference of structure are areas of typical spindle-celled sarcoma. The sarcomatous tissue is extensively necrotic, the necrosis in places being universal, and in other places sparing the cells immediately about the vascular channels: The necrotic areas are infiltrated with leucocytes. Necrosis is seen as well in the myomatous portion, but is not so prominent.

Microscopic Diagnosis.—Fibromyoma invaded by spindle-celled sarcoma.

Case 3.—Mrs. S. E. Specimen consists of about twenty-five separate pieces, which in aggregate make a mass about the size of a man's hand. One large globular mass measuring about 18 cm. in diameter makes up the bulk of the specimen. This mass presents a convex smooth surface covering about three-fifths of the mass. This surface is smooth, pale pink in color, part of surface being glistening and part of it showing firm, blood-stained connective tissue bands. The remaining periphery of this mass is exceedingly irregular and consists of various sized strips of tissue which are soft, friable and deeply stained and show numerous large blood vessels. The contents of many of the blood vessels consist of a firm coagulum. These shaggy strips are distinctly necrotic and are undoubtedly further represented by the numerous small pieces of semi-necrotic material which go to make up the remainder of the specimen. The comparatively smooth surface of this mass is irregularly lobulated and shows beneath the surface a number of small cysts filled with clear amber-colored fluid, also numerous pea-sized to cherry-sized spherical tumor masses, some of which present on cross-section a pearly white glistening surface with a whorl-like arrangement of the tissue elements. On section of the large tumor mass, the cut surface presents a thin cortex varying from 2 to 10 cm. in thickness composed of a firm, pinkish-white tissue beneath which is a whitish, coarsely granular surface showing the remains of numerous small cysts, most of which are filled with a blood-stained fluid. As one gets further away from smooth surface the secton becomes considerably blood stained and takes on a yellowish necrotic look and the cysts become larger in size until finally the semi-necrotic shredded mass described above is reached. The small pieces accompanying this specimen consists of stringy masses of distinctly necrotic tissue similar in character to that described as occurring in the center of the large tumor mass. One of the larger pieces accompanying the specimen is thin, averaging about 1 cm. in thickness, and has on its smooth side considerable adipose tissue and resembles in consistency, on cross-section, the firm tissue described as forming the capsule in the main tumor mass. No evidence of tubes and ovaries.

Anatomic Diagnosis.—Degenerated myoma of uterus.

Microscopic Description.—Sections through portion described as capsule of large tumor show thin layer of smooth muscle tissue with invading masses of medium-sized cells having rather darkly staining oval or spindle-shaped nuclei and little protoplasm. Many irregular mitotic figures are seen among these cells. The deeper, softer portions of the tumor are seen to be composed of solid masses of these cells. Numerous thin-walled blood vessels are seen in the cell masses. No evidences of necrosis are seen. Many blood vessels at the periphery of the tumor are completely plugged with the tumor cells. Sections through nodular masses at surface of tumor show smooth muscle tissue rich in cells and a moderate amount of fibrous tissue.

Microscopic Diagnosis.—Myoma of uterus invaded by spindle-celled sarcoma.

Case 4.—Mrs. C. R. Specimen consists of an enlarged uterus measuring 11 x 6 x 5 cm. Peritoneal surface is smooth. The walls are for the most part normal. At one point there is a typical myoma one centimeter in diameter, with a hemorrhagic center. Springing from the mucous membrane are a number of cauliflower-like excrescences over areas varying from 1 to 2 cm. in diameter. These project .5 cm. above the surface of the mucoso, some of them ulcerated, covered by little papillary projections and distinctly hemorrhagic. On section they appear to be part of the new growth which extends down into the uterine musculature. This growth is for the most part distinctly hemorrhagic, though in one or two places of a homogenous white color. In the uterine musculature of the fundus is a small cavity, about a centimeter in diameter, into which projects a number of pinhead-sized, congested, papillary excrescences.

Anatomic Diagnosis.—Adenocarcinoma of the uterus (?). Small interstitial myoma.

Microscopic Description.—Section presents a small piece of typical fibromyoma, at one side of which is a large hemorrhagic mass. The line of separation from blood clot is not distinct. The adjacent portion of tumor shows some lymphocytic infiltration. This hemorrhagic mass shows throughout some necrotic tissue with irregular strands and masses of syncytial tissue composed of cells with a large amount of protoplasm and large deeply staining nuclei. The outlines of these cells are not always distinct owing to the fusing of their protoplasm. The syncytial cells are found everywhere in the midst of hemorrhage. The necrotic tissue is moderately infiltrated with leucocytes. The nuclei of the large cells are often irregularly stained, sometimes are so arranged as to give the appearance of giant cells. These masses are in direct continuity with the myoma; in several places a distinct invasion is evident.

Microscopic Diagnosis.—Fibromyoma of the uterus infiltrated with chorio-epitheloma.

Relation to Cancer.—Adenocarcinoma of the fundus was associated with fibroid tumor in six cases; in two of which the fibroid was infiltrated by the carcinomatous tissue.

In five of these cases the uterus was the host of interstitial fibroids of small or medium size. When the relative frequency of adenocarcinoma and squamous cell carcinoma is considered it will be seen that we have here a much higher percentage of adenocarcinoma than is found in the usual run of cancer cases complicated and uncomplicated by fibroids. This agrees with Martin's estimation.

Squamous cell carcinoma of the cervix occurred in two cases. In both cases the fibromata were interstitial and very small.

In view of the relative frequency of adenocarcinoma and fibromata of the uterus, it would seem that the association of the two are worthy of consideration. If the percentage of fibroids at autopsies, 14.8 per cent. (*v. infra*), be taken as an approximate ratio of their occurrence, it seems at least that while the association of squamous carcinoma with fibroids is accidental, the occurrence of adenocarcinoma may be more or less influenced by the presence of fibroid tumors. In this connection statistics compiled from the records of institutions having large series of cases and autopsy reports would be of value.

Complications. — Ovarian cysts occurred in thirteen cases and varied in size from six to twelve cm. in diameter; but one was of the papillomatous type. Seven of these cases were additionally complicated by salpingitis.

The two parovarian cysts were of moderate size, about six to eight centimetres in diameter. One tubo-ovarian cyst existed, and was of moderate size.

The ovarian fibromata measured 8x7x4.5 and 20x11x10 centimetres, respectively. The latter was associated with a very small interstitial fibroma of the uterus. Of the two cases of carcinoma of the ovary, one was bilateral, and in both instances the growths were due to metastases from a tumor of the breast.

Cystic ovaries (one or both) in fifty-five cases (twenty per cent.) may seem to be a large percentage, but compares very closely with Scharlieb's[4] estimation of this complication. These are due, it is thought, to the undue thickness or toughness of the ovarian boundaries. There is in almost all these ovaries an increase in the amount of fibrous tissue.

Tubal Complications..—The tubes were diseased in sixty cases; of these thirty-eight were salpingitis alone. In several cases the gross change was slight and the diagnosis made microscopically. In twelve cases there was pus in the appendages in the form of pyosalpinx or tubo-ovarian abscess.

There were also eleven cases of hydrosalpinx, of which five were additionally complicated by salpingitis, tubo-ovarian abscess or ectopic pregnancy. One case combines all three—ectopic pregnancy, salpingitis and hydrosalpinx.

It will thus be seen that the ovaries, tubes and adjacent neighborhood were diseased in a large number of cases. Alban Doran states that his experience is more like that of Cullingworth, who found no disease in the appendages save five cases of hydrosalpinx in 100 fibroids. Lawson Tate and Twambly,[22] on the other hand, imply that this condition exists in fifty per cent. of all cases of fibroids. Daniels found disease of the appendages in fifty-eight per cent. of his cases. In this series (including fifty-five cases of cystic ovaries) the appendages showed disease in 137 cases, or forty-nine per cent. In addition to these cases there were many cases in which the remains of adhesions were noted, but as it was obviously impossible to estimate this with exactness, without description of the appearance *in situ* at the time of operation this complication has not been noted.

Myomata in Routine Autopsy Work.—On examination the records (Bender Laboratory) of autopsies on women show that fibromyoma of the uterus was found in twenty-six. In two cases apparently death was indirectly caused by the tumor. To what extent the inter-current disease, which was the cause of death in other cases, was hastened in its course by the associated fibroids, can not be deducted. The tumors were large in three (greater than eight centimetres diameter); small in twenty cases (less than four centimetres diameter), of these last ten were single and ten multiple. The age at which these patients died in decennial periods were as follows: Under thirty-five, three; between thirty-five and forty-five, six; between forty-five and fifty-five, six; between fifty-five and sixty-five, six; between sixty-five and seventy-five, four; above seventy-five, one. The youngest was twenty-eight; the eldest seventy-eight. The influence of the tumor was apparent in one case in which death was due to anemia and nephritis; a large submucous tumor by pressure had caused hydroureter and uterine hemorrhages. In a second case a large fibroid tumor of ninety pounds by pressure had caused hydroureter and venous congestion with edema of the lungs. In this case the weight of the woman, less the tumor, was sixty-five pounds. The other cases, which were probably influenced by the fibroid tumor, are deaths from pyonephrosis, pyelitis, rupture of bladder and acute peritonitis. Bishop[23] has collected thirty-seven fatal cases of fibromyomata.

Of the twenty small tumors, one was complicated by tubo-ovarian cyst and hydrosalpinx. Four were associated with adhesions, and one with carcinoma of the ovary secondary to mammary cancer.

Of the medium sized tumors, of which there were three, one was associated with bilateral pyosalpinx which had caused a general peritonitis. The tumors in this case were three in number and interstitial.

The total number of autopsies done on women over twenty years of age, during the seven years in which these autopsy reports were collected, amounted to 175. So that of all adult women coming to autopsy, 14.8 per cent., or one in every seven, had uterine fibroids. From this it may be seen that small fibroids of the uterus may cause little or no disturbance, and that many of these tumors cause no symptoms and are not discoverable during life. The danger of these growths, apart from submucous tumors, is due to their complications, and while these may not always endanger life, it is evident that they frequently cause sufficient disturbance to produce alterations in the surrounding tissues, as is shown by the presence of adhesions, etc.

RELATION OF PATHOLOGIC CHANGES TO TREATMENT.

In conclusion, what deductions can be drawn from this series? So much has been written by men of wider experience that it would be a work of supererogation to add to their well-debated advice. But there are a few questions to be considered:

First, in regard to the advice we must give to a patient suffering from fibroid. It is well understood that the operation for fibroids, in the hands of capable operators, is in uncomplicated cases practically devoid of danger. It is to complications and degenerations that mortality in fibroid tumors is due, as we know from experience and from published reports. Delay in an uncomplicated fibroid exposes the patient to the possibility of the development of complications. And with the large percentage of complications in this series it is evident that with delay the liability to complication is increased. While this is so, it is evident that there is one class of fibroids which may cause few or no symptoms, viz., the small subserous and interstitial tumors. We may, therefore, say that delay is justifiable only in these latter cases and not justifiable in even these when complications exist.

In reference to the extent of operation, while it is obvious that myomectomy is the ideal operation, there is no doubt that it is only applicable to a small class of cases—those in which the tumors are easily accessible and in which it is possible to eradicate them completely. If eradication is not complete, there is the possibility of renewed growth, and should pregnancy occur, with its increased blood supply, this possibility is the greater. This should be kept in mind, as those cases in which myomectomy is desirable are usually childless women.

It is at present accepted that the operation of supravaginal hysteromyomectomy[24] is accompanied by the lowest mortality[25]. But this operation is obviously not applicable to those cases with malignant degeneration and associated with malignant disease of the uterus. Such cases demand complete extirpation of the cervix. Should, however, the commonly accepted operation of supravaginal hysteromyomectomy be attempted, and on opening the uterus adenocarcinoma or suspicious necrotic change be seen, the cervix may be removed and a complete ablation done.[26]

Adenocarcinoma and sarcoma are the forms of malignancy which, in connection with fibroids, are most likely to come to operation unrecognized. If, however, the case be uncomplicated by malignancy, the choice must lie between amputation through the cervix and myomectomy. It is rarely advisable to do myomectomy when the appendages are adherent or in the presence of old or recent infection. The site of enucleation may become the starting point of a peritonitis.[27] In view of the large percentage (21.4) of diseased tubes, it is evident that myomectomy is limited to a small class of cases.

Should amputation through the cervix be the operation of choice, one or both ovaries may be left to ameliorate the symptoms of the surgical menopause. In such cases not only must the question of infection from the tubes be considered, but also the condition of the ovary. In a large percentage of this series cystic ovaries were found. A cystic ovary should not be left; if necessary, resection may be done and the cysts removed.

CONCLUSIONS

First. Fibroids which are producing symptoms, and all fibroids except those designated as small (especially when subserous or intramural), should be removed, because the risk to the patient from operation is far less than that from the tumors themselves.

Second. In view of the sarcomatous changes, carcinomatous associations and complications of uterine fibromyomata, early removal is indicated when they are of sufficient size to produce symptoms. Small uncomplicated tumors not producing symptoms do not require early treatment.

Third. Thorough pathologic examination should be made of all fibroids for evidence of malignancy. Particular study should be devoted to those tumors which are necrotic, cytsic or both, as among these are found the largest proportion of malignant changes.

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A PECULIAR HYPERTROPHY OF THE PROSTATE, ACCOMPANIED BY AN ASCENDING INFECTION AND CYSTS IN THE URETERS, WITH A GENERAL DISCUSSION OF URETERITIS CYSTICA.

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AND

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(From The Bender Laboratory, Albany, N. Y.)

While hypertrophy of the prostate is of common occurrence, the peculiar form to be described is unusual and explains some of the difficulties of catheterization and cystoscopic examination met with in this condition. The formation of cysts in the mucous membrane of the ureter is, on the other hand, much less frequent, being noted but twice in the records of over 600 post-mortem examinations at the Bender Laboratory. Previous to 1894 Lubarsch[1] cites but ten cases in the literature and found the condition himself in four out of 3,000 sections.

Following is a brief summary of the two cases we wish to report:

Case I.—(Bender Laboratory Records, autopsy No. 0-604). *Clinical History:* E. S., male, age 80, admitted to the Albany County Hospital, February 18, 1903. Patient complains of diarrhœa and difficulty in voiding his urine. Family history—negative. Past history—Has used alcohol freely. Denies any venereal infection. Present condition—The patient's mental condition is defective and he gives untrustworthy replies to questions relating to his illness. He has used a metal catheter for some time, passing it himself without antiseptic precautions.

Physical Examination—The heart, lungs and abdomen negative. The rectum is prolapsed. The left testicle is apparently swollen, tense and transmits light and is about 8 centimetres in diameter. The prostate per rectum is found to be enlarged. There is a purulent discharge from the urethra. When the urine is withdrawn by a rubber catheter the first portion is pure pus and is followed by ammoniacal cloudy urine. Death ten days after admission, February 28, 1904.

Autopsy seventy-two hours after death by Dr. A. T. Laird.

Anatomical diagnosis.—Hypertrophy (fibro-myoma) of the prostate. Diphtheritic cystitis. Ascending infection (pyelo-nephritis) of both kidneys. Bilateral ureteritis cystica. Acute vesiculitis. Chronic interstitial nephritis. Chronic interstitial orchitis. Tuberculosis of epididymis and prostate.

Prostate—Shows hypertrophy, particularly in the lateral lobes, which cause obstruction to the outflow of urine, not, however, by pressure upwards as is seen with hypertrophy of the middle lobe. but rather by pressure downward. The chief hypertrophy is in the right lateral lobe, which extends across the upper wall of the urethra. It is peculiar in being attached to the lower portion of the gland by a thin pedicle which allows considerable mobility of the tumor. Extending outward in a lateral direction from the prostatic portion of the urethra is a pocket which measures 3 x 2 centimetres and which communicates with the bladder by a narrow orifice. Into this pocket the pedunculated lateral lobe fits, completely closing the communication between the bladder and the pocket, thus preventing the passage of urine and acting as a "drop latch." When a catheter is introduced it passes into the pocket and drains the pus which has accumulated there, at the same time it lifts the pedunculated lateral lobe allowing the urine to escape. The mucosa lining the pocket has a greenish grey color and is studded with fine miliary abscesses. The left lobe of the prostate is firm in consistency; the right lobe is softer than normal and nodular and on section the stroma predominates; small yellowish areas of glandular tissue are present. In the left lobe no glandular tissue can be found.

The Bladder is externally roughened and congested and attached to the adjacent coils of the small intestines by fresh adhesions. There are also extensive adhesions between the rectum and bladder. The bladder is dilated, its walls average 0.5 centimetre in thickness and it is infiltrated with pus throughout all its coats. The mucosa is covered with a seropurulent exudate and is of greenish color with here and there streaks of red.

The Right Kidney—Measures 9 x 5 x 3 centimetres. The capsule strips readily leaving a smooth surface. Beneath this are found a number of minute yellowish areas about 0.5 centimetre in diameter, which when sectioned appear to be made up of purulent material. The substance of the kidney appears normal, although the markings are somewhat indistinct. The pelvis of the kidney is dilated and the mucosa is congested.

Right Ureter—The mucosa is congested and about fifty small cysts project from it into the lumen. They have a glistening yellowish color and are filled with serous fluid which is under considerable pressure, spurting out when the cysts are punctured. In some cysts the contents are slightly tinged with blood.

The Left Kidney—Measures 7 x 4 x 3 centimetres. It has been converted into an abscess cavity and but very little of the normal kidney substance remains. The abscess cavity is lined by a purulent membrane. The mucosa of the pelvis is swollen and is covered with a purulent exudate.

Left Ureter—Is much dilated, measuring 1.5 centimetres in diameter. About a half centimeter from the ureteral orifice in the bladder several cysts are found, smaller, however, than in the ureter of the opposite side.

Seminal vesicles—Contain pus and yellow mucoid material.

Right testicle—Shows extensive atrophy. There is also a hydrocele measuring 10 x 4 centimetres.

Left testicle—The globus major of the epididymis is caseous and the interstitial tissue of the testicle is increased.

Urethra—Stricture of large calibre in the bulbous portion.

Histological Description—The cysts of the ureter are surrounded by a distinct membrana propria derived from the submucosa and are lined by transitional epithelium. The cyst cavities are filled with exudate often hemorrhagic, and containing desquamated epithelial cells. Among these are oval, pale, faintly staining bodies frequently showing nuclear shadows. The epithelium of the ureter is absent for the most part over the cysts; only a few strands of connective tissue separating the cysts from the lumen. Several of v. Brunn's cell nests are present in the submucosa; no lumen connecting them with the ureter can be found.

Microscopic examination of the cyst contents showed many epithelial and pus cells and bacteria. Peculiar round or oval highly refractive bodies containing vacuoles are also present and with Sudan III give the characteristic reaction for fat. Cultures made from the cysts showed the presence of the B. coli communis.

Case II—(Bender Laboratory Records, Autopsy No. 0-323). L. G. R., female, aged 54. Autopsy, October 20, 1900, by Dr. G. Blumer.

Anatomical Diagnosis—Left renal calculus. Right ureteral calculus. Pyelitis on right side with atrophy of kidney. Cystic ureteritis. Pyelonephrosis with multiple miliary abscesses of kidney substance. Cystitis. Brown atrophy of heart muscle. Emphysema of lungs with hypostatic congestion and œdema. Cloudy swelling of the liver. Acute splenic tumor.

Left Kidney is greatly dilated and on section the pelvis is found to be enormously distended with thick greenish pus and contains a single yellowish white stone, granular in appearance (phosphatic). From it at one point a brownish stone projects, probably uratic (?) in origin. The removal of the capsule tears away the kidney substance which moreover is greatly diminished in amount. The surface of the kidney is congested and dotted with miliary abscesses.

To Illustrate Dr. Carey's and Dr. Laird's Article on "A Peculiar Hypertrophy of the Prostate."

Albany Medical Annals, July, 1904.

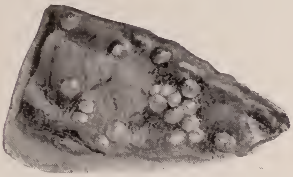

Fig. I —Shows the cysts in the mucosa of the ureter (actual size).

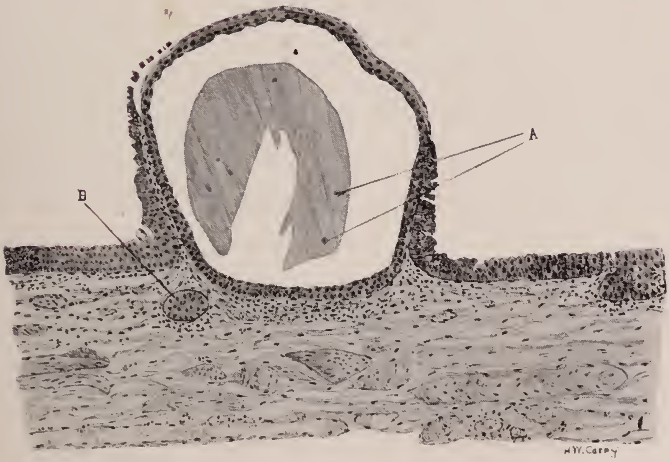

Fig. II.—Shows the structure of one of the cysts; the membrana propria extending entirely around the cyst wall. (A) are the bodies described as degenerated epithelial cells (so-called sporozoa); (B) a cell nest (v. Brunn); (objective, 1-6; ocular, I.).

Left ureter is markedly dilated and the mucosa is covered with little polypoid excrescences, perfectly round and translucent and average 1 centimeter in diameter.

Right kidney is greatly contracted and on removal of the capsule the surface is finely granular. On section the cortex is considerably diminished in amount. The pelvis of the kidney is dilated and contains thick pus.

Right ureter is blocked about 2 to 3 centimetres above its vesical orifice by several small stones.

Bladder contains thick muco-pus greenish in color. It is markedly contracted and the mucosa is congested.

Bacterioscopic—In the kidney abscesses was found a bacillus of the mucosus capsulatus group.

Histological Examination of cysts in the ureters. The cysts are located in the submucosa but project prominently into the lumen of the ureter, fully five-sixths of the cysts are above the level of the mucosa. The epithelium of the ureter has desquamated over the cysts leaving only a few strands of connective tissue. This connective tissue, derived from the submucosa, surrounds the cysts and also separates them from the lumen of the ureter. The lining of the cysts is composed of epithelium similar to that lining the ureter, that is transitional epithelium. At the base of the cyst are several layers of epithelial cells, but at the periphery where the pressure is greatest there are fewer layers and the cells are quite flattened. The contents of the cysts are in some cases colloid material similar to that found in the thyroid; in others, cellular debris. In the contents oval and refractive bodies, three to ten times the size of a leucocyte, are constantly present and in some of these faint bodies can be seen (nuclei). These are probably identical with the so-called sporozoa that have been described in association with cysts of the ureter.

Several of v. Brunn's cell nests are present in the submucosa. In one instance a connection between a nest and the lumen of the ureter exists.

Formation of Ureteral Cysts

Cysts of the ureter, pelvis of the kidney and bladder were first described by Rayer[2] and later by Rokitansky[3] and Morgagni[4]. Virchow[5] thought their formation in the ureter was due to a blocking of the crypts in the mucosa of the ureter followed by a retention of secretion; and in the bladder, on account of the presence of concentric bodies in the cyst contents, attributed them to misplaced prostatic glands. Hamburger[6] described glands in the mucosa of the ureter which simulated the appearance of sebaceous glands and he thought the cysts originated from these. In a histological study of the ureter v. Brunn found nests of epithelial cells surrounded by a membrana propria and called attention for the first time to the peculiar arrangement of the connective tissue beneath the epithelium of the ureter. This arrangement is that of a meshwork with thickening at the nodal points forming septa which extend upward into the epithelial layers. The height of the septa varies inversely with the intra-ureteral pressure, being higher when the pressure is low. To variations in pressure v. Brunn[7] attributed the formation of these cell nests, small portions of the epithelium being enclosed and surrounded by the septa of connective tissue.

To determine whether cell nests were normally present Aschoff[8] studied the pelvis of the kidney, the ureters and the bladder in the new born and adult, but in no instance were they present, hence they are not constant elements. He discredits the influence of pressure in the formation of the cell nests.

Later investigations of Lubarsch[9], Marckwald[10], Stoerk[11], Zuckerhandl[12] and Paschkis[13] support the theory that the cysts originate from the cell nests of v. Brunn.

The method of formation of the cysts is described by Aschoff as follows:

(a) Enclosure of a portion of epithelium by septa of connective tissue with the formation of a cell nest. This causes small macroscopic nodules or granules in the mucosa of the ureter.

(b) Central degeneration of these cells accompanied by a transudation of fluid into cysts cavity.

The Location of Cysts is fairly constant and corresponds to the points of constriction in the ureter. They are almost constantly found in the pelvis of the kidney, upper third of the ureter and at the uretero-vesical orifice on the trigonum. They are frequently bilateral. In the two cases above reported the distribution of the cysts was diffuse and not limited to any portion of the ureter.

Etiology.—The exact cause of the formation of these cysts in the ureter is not known, but in the large majority of the cases reported they developed in association with inflammatory and suppurative conditions of the bladder, ureter and pelvis of the kidney (ascending infections).

In the twenty-four cases, including our two, a cystitis, calculus or pyelitis existed in all but two; in the latter no lesion of the urinary tract could be found.

Mention has been made above of the oval translucent bodies found in the cysts contents. These have been described as sporozoa by v. Kahlden[14], Pisenti[15], Silcock[16], Eve[17], Clark[18] and Sutton[19], and were believed to be the cause of the cyst formation. This view has not been supported by later investigations since the parasites could not be cultivated from the cysts and moreover it is improbable that any infection of this nature should always be limited to such a prescribed portion of the urinary tract.

The so-called sporozoa in our sections, while resembling parasites in some respects, were by no means constantly present in the cysts and never very numerous. They were never found outside of the cysts, in the lumen of the ureter or in the epithelium; where they were surrounded by cellular debris a gradual transition from epithelial cells to these so-called parasites could be traced. In some, several faint nuclei could be seen. It is our opinion that these parasitic like structures are an early stage in the degeneration of the epithelial cells lining the cysts and later become colloid. The interest in this condition of Ureteritis Cystica does not, however, relate entirely to its pathology. Aschoff has called attention to the fact that in the early stages of the formation of the cysts they may be mistaken for miliary tubercles in cystoscopic examinations.

In one of the cases reported by Marckwald the development of the cysts had been so extensive as to block the ureter completely, giving rise to great hydronephrosis. Healton and Gamgee[20] have reported a case in which haematuria had existed for many years and at autopsy a cystic villous papilloma of the renal pelvis was found. The bleeding, in part, was due to the rupture of the cysts.

RESUMÉ

1. Hypertrophic lateral lobes of the prostate may be pedunculated and by their downward pressure on the urethra obstruct the outflow of urine, acting like a "drop latch."

2. The origin of cysts in the ureter is attributed to the central degeneration and later transudation of fluid into v. Brunn's cell nests.

3. Ascending infection of the urinary tract is the important factor in the etiology of these cysts.

4. The peculiar translucent oval bodies resembling sporozoa are in some instances the product of epithelial degeneration.

5. The cysts may, in their early stages, simulate miliary tubercles.

6. Cysts of the ureter may cause obstruction to the passage of urine from the kidney to the bladder with consequent hydronephrosis.

7. Rupture of the cysts can give rise to haematuria.

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CONGENITAL ATRESIA IN UPPER THIRD OF SMALL INTESTINE; RUDIMENTARY STATE OF THE WHOLE INTESTINAL TRACT BELOW; PRESENTATION OF ANATOMICAL SPECIMEN.

Read before the Medical Society of the County of Albany, April 13, 1904.

By J. L. ARCHAMBAULT, M. D.,
Cohoes, N. Y.

Mr. President, Gentlemen:

This rare vagary of nature has some title, I do hope, to lay claim to your kind attention, for, together with the history of the case and a description of the post-mortem findings, I am able, having secured the pathologic piece, to submit it to your inspection, which I will do presently.

The case, as taken from the records of the Cohoes City Hospital, reads as follows:

On the morning of April 15, 1903, sixty hours after birth, Ernestine M. is brought to the hospital and referred to Dr. Archambault by the family physician, Dr. T. S. Parker, as a case of "obstruction of the bowels" from imperforation above anal orifice.

Report of attending physician.—Child has had no passage since born. Began to vomit soon after being put to the breast. Vomiting soon followed by distress. Distress intermittent at first, but becoming gradually continuous, with spells of exacerbation, and having now lasted about eighteen hours. There has been no discharge through vagina, and the urine has been passed clear.

Status presens.—On inspection, abdomen generally distended and tympanitic. When the child cries and strains, coils of intestine become apparent under the parietes. External genitalia and rectal opening appear normal.

By slow dilatation, the little finger, and after this the index finger, can be inserted into the well-formed anus and directed upward in a narrow gauged tube to their full length without encountering the seat of the occlusion. A No. 32 F. sound is next introduced and worked up into the sigmoid flexure until felt by abdominal palpation over the pubic arch. An aspirating needle is even tried carefully in the direction in which bulging appears to take place when the child makes an effort, but the exploration remains negative.

After proceeding this way as far as the immediate safety of the child can justify, the bowels not being discovered, and the distance intervening between the outlet and the hypothetic septum precluding the possibility of any successful dissection, a right inguinal colostomy is resorted to, with a view of giving the little patient whatever relief and chance there can be.

Operation.—The incision comes down directly on a greatly distended coil of the small intestine. This is returned and pushed to the left, and an attempt made at finding the head of the cecum, but the search is frustrated. The location of the cecum is occupied by a cluster of intestinal loops, all shrivelled, shrunken and curled up. This mass is also returned promptly, and spending time in any protracted investigation being out of place, the distended coil which had first presented is sought for, brought into the incision, and anchored to the peritoneal edge by a running catgut suture. An opening into the gut is then made, and the mucous membrane secured to the skin by a second running suture. The procedure gives immediate relief by the escape of a great amount of flatus and of not less than a litre of meconium.

The operation has been proceeded with under whiffs of chloroform. The little patient comes out of the anesthesia and of the operative shock with a reserve of vitality truly astonishing, and soon after is carefully transferred from the hot atmosphere of the operating room to a sort of improvised incubator, and given a nursing of a small amount of diluted peptonized milk with a few drops of an alcoholic stimulant.

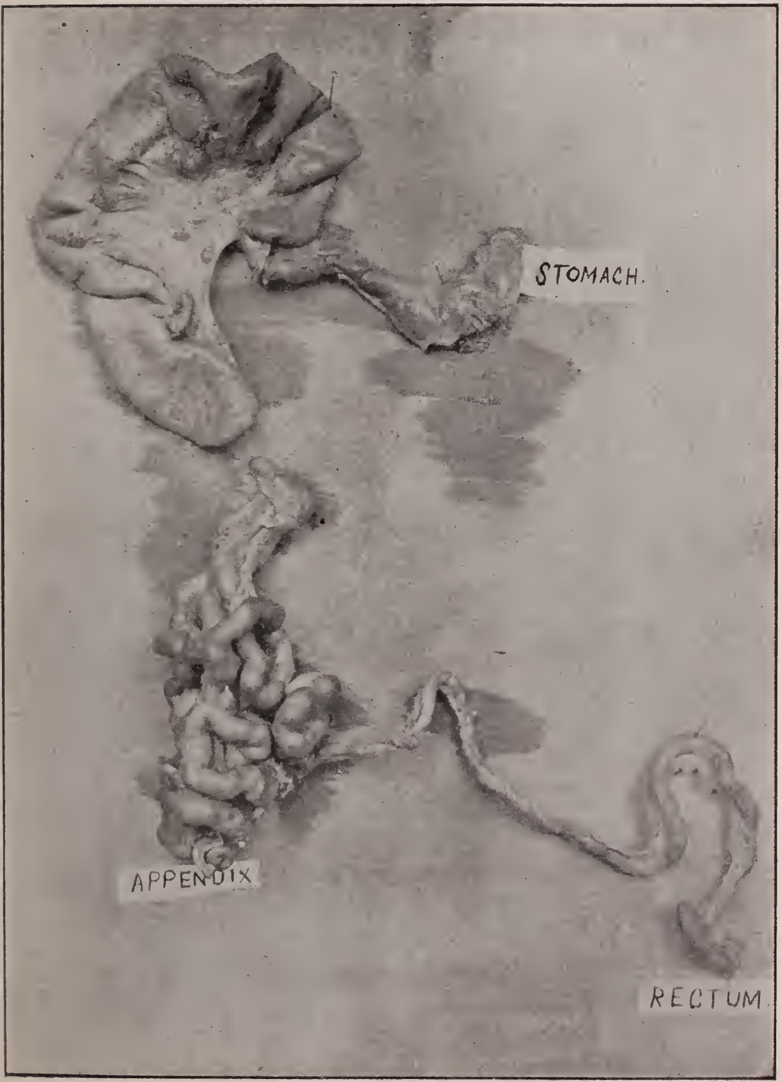
After this, similar small feedings were carried on every half hour. While vomiting did not recur, and the little patient did not seem to endure any more paroxysms of pain, it gradually grew weaker, its extremities became cyanotic and cold, and it expired eight hours after operation. Within an hour, the rigor mortis being fairly established, an autopsy was performed.

Post mortem.—On opening the abdomen in the median line, quite an amount of reddish serum oozed out, which was considered as an evidence that the needle-exploration had not been innocuous, unless the occurrence were to be explained by the order of things present.

The whole large intestine and the greater part of the small were in a rudimentary state, forming a narrow canal about the size of a coarse lead pencil, and extending in this abnormal condition from the anus to about the middle portion of the jejunum. Above this, the intestinal tract was normal in size and development up to the gastric cardia. The two portions were without any communication; they were entirely disconnected. The rudimentary canal was in places empty and collapsed, in others it appeared as containing some concrete material. The part representing the different sections of the large intestine occupied in the abdominal cavity their usual anatomical relations, while the one representing the small intestine was all in a bunch and crowded down in the right iliac region where it was overlying the ascending colon and terminating in a cul de sac of about the form and size of an ordinary appendix. The appendix itself, which was found beneath, was well formed, and in its usual relation to the caput coli and ileocecal valve. Close to the cul du sac just mentioned, and separated from it by a firm constricting band, there was a small mass the size of the yolk of a hen's egg. This small doughy mass was in its turn separated by another much thinner band from a large blind pouch, situated sideway to it, and forming the terminal portion of the greatly distended upper part of the jejunum. The two bands formed part of the mesentery, and the small mass appeared as imbedded in the latter, while the large pouch was movable in all directions and floating on a regular mesenteric attachment. It thus appeared that, at this very point, the intestinal tract had been the seat of a double strangulation, one more stringent than the other, and culminating, in the course of the embryonic life, in a complete severance of the alimentary canal. From the blind pouch, the small intestine, now as large as, if not larger than, the large intestine in the adult, described a downward course for about twenty centimetres, and then reflected itself in a semi-circle, ascending in the left hypochondrium, which it filled, and turning again in the region of the transverse colon to meet the duodenum. The duodenum and stomach were also greatly distended, but otherwise normally located and constituted; the walls of the stomach were, however, much thinner than usual, their thickness not exceeding the usual thickness of the small intestine in the region of the ileum. By their distension, the stomach and duodenum accounted for the uniform bulging noted in the upper segment of the abdominal cavity, while the inferior half was filled by the gigantic jejunum and blind pouch. It was this discending part of the jejunum next to the blind pouch which presented in the line of incision and in which the artificial anus was practised, at about ten to twelve centimetres from the cul de sac.

To Illustrate Dr. Archambault's Article on "Congenital Atresia of Small Intestine."

Albany Medical Annals, July, 1904.



As you can see by referring to the specimen, which I would be glad to have you examine now, the whole alimentary tract has been preserved from sigmoid flexure to cardia, and forms part of the incipient and modest pathologic museum of the Cohoes Hospital.

The other organs in the abdominal cavity did not offer any abnormality; the genito-urinary system, in particular, was well developed; it was only noted that the left ovary was accompanied by two small, but well-formed, hydatid cysts, the size of large currants, hanging free by slender pedicles over the top of the broad ligament.

It may be here stated that the mother of the child had previously given birth to five children, none affected with any deformity; that she is herself a woman in good health, and that freaks of nature are not known on her side, nor on her husband's side.

Were present at the operation: Drs. Parker, Montmarquet, Gervais, Adey, Crane; and Dr. Lasalle Archambault, who had charge of the chloroform.

Of congenital abnormalities of the intestinal tract—atresia, imperforation, stenosis, obstruction—the literature is rather meagre, at least the one I could have access to, and more meagre still is one's personal experience. In his practice—now rather extensive, as to time—the writer has met with but three cases of imperforated anus, all terminating unfavorably and deserving of no special report as they all were of the common form described in text-books.

While, in text-books, reference is made to occlusions having occurred at different levels in the pelvic portion of the large bowel, with the interposition of septa of varied thicknesses, and sometimes the opening of the gut into adjoining organs (bladder, urethra, vagina, etc.), nowhere could he find mention made of atresia being on record which had occurred high up in any part of the digestive apparatus. He felt, therefore inclined to consider the case now related as being likely a unique one until, as it was being written up, he saw indexed in the number for June, 1903, of *American Gynecology*, an article published by Dr. Salva Mercadé, in the *Annales de Chirurgie et d' Orthopédie*, of Paris, number of March, 1903, under the following heading: Congenital Stenosis of the Lower End of the Ileum and of the Whole of the Colon" ("*Retrécissement congénital de la fin de l' iléon et de tout le gros intestin*").

The case is so very interesting and in many points so nearly identical with the one just reported that the writer begs to give you here a brief translation of the principal parts of Dr. Mercadé's article.

September 10, 1902, a child four days old is presented in the service of Professor Lannelongue at the Hôpital des Enfants, with a diagnosis of imperforation of the rectum. It is the first born of a healthy mother, with no pathologic family anamnestics. The child is at full term. Two or three hours after birth, a few teaspoonfuls of sweetened water are given and vomited. The next day, the child vomits again; he would take the breast well, but soon after would vomit the milk colored yellow-green. In the evening, having had no stool, he is given some laxative by the midwife; this likewise is rejected. The next day (the third), greenish vomiting. As no passage has yet been obtained, a physician is called in, who diagnoses: imperforation of the rectum. The next morning, the child is sent to the hospital. When seen by Dr. Mercadé (this is the fourth day), the child's skin is of a marked yellow color; it vomits repeatedly a greenish material; the pulse is imperceptible; the abdomen is ballooned; the intestinal coils greatly distended; percussion gives a dull note all over. The little finger being introduced in the rectum advances up to the second phalanx, but is there arrested in a cul de sac, offering apparently no opening beyond. The finger, however, receives no sensation of a fecal impaction or of a tumor existing at that level. A sound inserted in the anus proceeds no further than at three centimetres. Satisfied as to the existence of an imperforation, or at least of a stricture of the rectum, Dr. Mercadé, at this juncture, sends for Dr. Faure, the surgeon in charge. Dr. Faure, incapable of pushing further up than the cul de sac already explored, and in the anticipation of the gap it would require to gain access by this way to the rectum, selected to make an iliac anus, with the option in mind to catheterize the gut down through the latter opening.

The little patient being given chloroform, under which it behaved splendidly during the three-quarters of an hour that the anesthesia lasted, Dr. Faure, through an incision in the left iliac fossa, looked for the sigmoid flexure, which he found empty and of the calibre of a goosequill. The coils of the small intestine were, on the contrary, distended, dark red in color, and ecchymotic. Resorting now to a secondary median incision, a complete evisceration was practiced, giving evidence of a still greater distension of the lower end of the ileum than of the rest of the small intestine above. At this point, the ileum was found to terminate in a cul de sac, and further down it appeared of the size of a goosequill, about five centimetres long, ending in the cecum. Thus, there existed a congenital stenosis of the lower end of the ileum. Dr. Faure ligated the stenosed part of the ileum and returned it into the peritoneal cavity, while he brought the distended part into the abdominal wound, thereby establishing an artificial anus. As soon as opened, the intestine gave vent to a great outpouring of meconium.

Soon after the operation, three hundred grams of normal serum were injected under the skin; a few spoonfuls of milk were fed, and the new anus gave signs of activity. The little patient, however, succumbed the next day.

At the autopsy, the following findings were recorded: Nothing abnormal on the part of the thoracic organs. No malformation of the organs contained in the abdomen, except as regards the digestive system. Notwithstanding the artificial anus, the coils of the small intestine are still dilated; they are red, although not abnormally conformed. The stomach, the duodenum, the jejunum, the ileum, opened in their entire length, are normally constituted. The lower end of the ileum is, however, of a calibre greatly diminished in the four centimetres next to the ileo-cecal valve, that is, from that valve up to the point where it was ligated. In this part, the calibre hardly admits of the introduction of a grooved sound. The appendix is normal. As to the large intestine, it has a characteristic appearance. Its length and location are normal, but its dimensions are very slender. While in the fetus at full term, the circumference of the small and large intestine is respectively as ten to twenty, with slight variations in some cases, the relation is quite the reverse here, and the smaller bowel is the largest. On reaching, however, the pelvic portion of the colon, this part regains greater volume and the rectum is of normal size. Upon palpation, the large bowel gives, here and there, the sensation of a solid cord; it is, however, permeable throughout.

The case is therefore one of congenital incomplete stricture of the lower end of the small intestine and of the whole of the large intestine.

Now, if we compare the two cases, the total disconnection of the two segments of the intestinal tract and the much higher level of the stenosis form the two essential points of difference between the writer's case and the case of Dr. Mercadé. Yet both cases offer enough similarity to make it of scientific interest to bring them together, when one considers, as stated at first, the scarcity of the literature with regard to the report of such cases.

In explanation of the peculiar occurrence, different theories have been presented, and Dr. Mercadé makes quotation of the following:

The theory of Sutton—*exaggerated obliteration* of the intestinal canal—which may explain cases where a limited portion of the intestinal canal is obliterated, but is insufficient in cases where the lumen persists.

The theory of Tandler—*overgrowth* of the epithelium—which can apply but to a few cases where the atresia is confined to a very restricted area, etc., etc.

Finally he comes to the conclusion that in cases where the contracture is as extensive as in his case, no such theory can prove satisfactory, and that one is impulsively inclined to think of an *arrest of development*, and to investigate, as a natural corollary the period of the embryonic life at which the accident is likely to have occurred and from what cause.

From the researches of Heckel, it is known that up to the sixth month the small intestine is more voluminous than the large, and that it is only after that period that this relation is reversed. In his case, the relation of size not having changed; the small intestine having remained three times larger than the large intestine, it seems therefore pertinent to admit that an arrest of development has taken place in the whole of the colon at about that period of gestation (the sixth month), and that this arrest of development has not only involved the large, but as well the terminal portion of the small intestine, and this as would be expected, both belonging to the ascending limb of the vitelline loop.

But how is this arrest of development to be explained? Here we enter in part in the field of hypothesis, although everything is not necessarily conjectural.

As it is an accepted fact that the large intestine and the lower portion of the small are formed out of the ascending limb of the vitelline loop, it is also recognized that their blood supply in the fetus is derived from the *descending* ramifications of the mesenteric artery (originally one of the vitelline arteries), while the *ascending* branches of the same artery are distributed to higher portions of the small intestine.

Thus, a vascular lesion striking all the *descending* ramifications of the mesenteric artery, would arrest the nutrition and development of the part they supply, while the part receiving its nourishment from the healthy *ascending* branches would not suffer in its growth.

This seems to have just occurred in this case. The whole colon and the part of the ileum next to it being cut off in their blood supply by the existence of such a lesion, have withered and remained stationary, or even atrophied, while the upper part of the digestive tract, receiving a normal blood supply, has continued its regular evolution.

That such a lesion of some part of the vascular system in the fetus has to be advocated is, of course, a mere supposition. But such a supposition is steadily gaining ground to-day.

Durante, in support of this hypothesis, incriminates, as cause of these vascular lesions, various forms of infections and toxemias taking place in utero and carried through the placenta. The circulation of the fetus is stricken in its evolution and the organs depending on the diseased arteries suffer in their vitality and development.

Dr. Mercadé adduces some other anatomical points in support of his views, especially as to the period of the utero-gestation at which the arrest of development occurred, and the whole argument forms a strong plea, and one not easily controverted, yet one not to be insisted upon as it does not apply here.

As to the hypothesis of an arrest of development from a vascular lesion resulting in a deficient blood-supply, the writer has much to regret that this theory does not cover his own case quite as easily as Dr. Mercadé's case.

As you have noted, the arrest of development in the writer's case is more extensive than in the case of Dr. Mercadé, involving not only the terminal portion of the ileum, but the most of the small intestine, in connection with the whole of the large; consequently, parts having a different blood-supply. In other words, parts receiving their blood-supply, not from one vessel alone or some of its subdivisions, but from several (at least two) different sources.

As graphically described by Cruveilhier, Sappey, Verneuil, the inferior mesenteric artery supplies the upper portion of the rectum (by its terminal branches), the sigmoid flexure, the descending colon and the left half of the transverse colon (by its lateral ramifications; colic branches), while the superior mesenteric artery furnishes circulation to the other half (the right) of the transverse colon, the ascending colon, the caput coli, the ileo-cecal appendix (by the three coarse trunks which originate from its concavity), as also to the whole of the small intestine from cecal valve to lower third of duodenum (through the numerous ramifications emerging from its convexity, which branches form anastomosis with the left colic branch of the inferior mesenteric artery below—the largest anastomosis in the body—and with the pancreatico-duodenal branch of the hepatic artery above, at the middle of the duodenal curve where both branches inosculate). Therefore, it is no longer a cut off of the *descending* ramifications alone of one of the mesenteric arteries in their distribution to the colon and lower end of the ileum (as parts representing the ascending limb of the vitelline loop or stalk) which is required to apply in the case, but an involvement as well of its *ascending* ramifications, together with most of the branches of the other mesenteric artery; thus implying a lesion of both mesenteric arteries, the superior and inferior, regardless of their difference of origin and location. Regardless also of the fact that nothing explains why the cut off should have stopped short of involving the ramifications extending to the upper portion of the jejunum and lower portion of the duodenum. The anatomical disposition of those branches does not seem to support such a discrimination. It is easy, indeed, to understand a lesion striking at the root of a vascular system and disabling this system throughout, but it is not quite so easy to explain that a lesion would strike at the same time, completely the whole divisions of a main arterial trunk, and only selectively some of the ramifications of another similar vessel, unless of advocating an anomaly of distribution in the branches of the vitelline arteries, in addition to the anomaly of growth and development.

There is another point of view from which the hypothesis of a vascular lesion is difficult of application in the writer's case. Aside from the difference of arterial distribution and the difference of level at which the atresia took place, his case—and this is the essential difference—his case is not only one of stenosis with persistent permeability of the lumen of the gut at the seat of the stricture, but one of absolute occlusion with entire separation and disconnection of the two divided ends.

In presence of such a contrast in the nature of the malformation—the field of hypothesis being unlimited—some may feel inclined to ascribe the anomaly as well to a defect of innervation as to a vascular lesion, and others still more pertinently to some obscure form of *mechanical obstruction.* In this light, one has at once present in mind the possibilities of an intussusception, of a volvulus, of a *strangulation* by *bands of pseudoformation* or by a diverticulum, as the case could have been, for instance, from Meckel's, had the atresia been located lower down.

It may, then, not have been incorrect to consider, as the writer did, that in his case, at some time in the course of the embryonic life, a mechanical obstruction occurred which caused a double strangulation of the intestinal tract and resulted ultimately in a complete severance of the strangulated part in two absolutely disconnected segments.

In conclusion, whatever be the speculations, if there be any doubt as to the proper understanding and explanation of the anatomical lesion that has taken place, there seems not to be any as to the period of gestation at which it occurred. That it occurred at about the sixth month, and anterior to the seventh, is an opinion well supported in either case.

To Dr. R. M. Pearce, of the Bender Laboratory, I am indebted for the photographic plate illustrating this rare case of atresia, a careful study of which makes the understanding of the malformation so much clearer. Dr. Pearce has also had the courtesy to write a brief description of the macroscopic appearance of the specimen. His notes, together with the able discussion of the paper Dr. J. D. Craig has kindly volunteered, add no little value to the writer's contribution. Both are here appended:

Report of Dr. Pearce.—

Specimen submitted by Dr. Archambault and referred by Dr. Albert Vander Veer, April 15, 1904.

Specimen consists of gastro-intestinal tract of a child sixty hours old and is preserved in 2 per cent formalin.

Gross Description—Stomach measures from cardia to pylorus along lesser curvature 6.5 centimetres; along greater curvature 11 centimetres. Greatest circumference 5.5 centimetres. Pylorus 1.7 centimetres in circumference. Along the greater curvature the peritoneal covering shows some fibrous thickening. Stomach appears normal in all its parts. The omentum is adherent to greater curvature.

Below the pylorus for a distance of 40.5 centimetres the small intestine is greatly distended measuring 7.7 centimetres in circumference. This portion of the intestine has a perfect mesentery which also like the serous coat of the intestine exhibits some fibrous thickening. The mesenteric lymph nodes are normal. At the end of this dilated portion (40.5 centimetres below the pylorus) the continuity of the intestine abruptly ends in a blind pouch which shows slight fibrous thickening. The remainder of the small intestine appears as a large convoluted narrow tube with more or less perfect mesentery. The portion approximating the closed end above measures 2.3 centimetres in diameter. Its lumen is completely obliterated and to it are attached several fibrous tags which apparently mark the former attachment to the closed end above. This lower atrophic portion of the intestine is uniform in size, in no place measuring more than 2.8 centimetres in circumference. Section of this portion of the intestine shows the lumen to be preserved and filled with a soft greyish yellow cheesy-like material. Owing to the convoluted character of this portion of the intestine, it is impossible to measure its length.

Appendix presents a double twist and is normal in appearance. The large intestine measures 37 centimetres in length and consists practically of a fibrous canalized cord. Its diameter is less than that of the small intestine varying from 1 centimetre in circumference in the upper portion to 2.1 centimetres in the lower portion. Lumen patent throughout and contains same material as the small intestine.

Anatomical Diagnosis—Congenital atresia of small intestine (40.5 centimetres from pylorus) with dilatation of intestine above this point and atrophic rudimentary condition of entire intestinal tract below.

Discussion by Dr. Craig.—

Mr. President: I think Dr. Archambault's extremely interesting and valuable paper is worthy of careful and thorough discussion by the members of this society. It is not often that such a unique paper, on any embryological subject, is presented to this society with the post mortem findings. I want to congratulate Dr. Archambault upon the fact that he has been able to secure so valuable and unusual a specimen. I trust his paper will be printed in our ALBANY MEDICAL ANNALS, together with a carefully made diagram or photograph which will show clearly the points which he has made, and that reprints of the article will be sent to all members of the profession who are likely to be interested in it.

While I do not feel competent to discuss the points of Dr. Archambault's paper from the standpoint of an expert embryologist, as a general anatomist, however, with only a passing knowledge of embryology, I desire to present two or three thoughts for the consideration of this society.

It seems to me that neither the suggestion of an anomalous or obliterated arterial supply nor the hypothesis of perverted innervation is competent to explain the post mortem findings of Dr. Archambault. I think the records will not show many cases of a similar character. The condition must be a very rare one. I am not familiar with any recorded findings exactly similar to it. The explanation of such a condition as is presented in the specimen shown to-night seems to me to be very difficult to make and its appearance quite different from that which is usually found as a result of imperfect embryological development. It is comparatively easy to understand the reason for the existence of a hypospadias or an extrophy of the bladder. When the cloaca fails to differentiate the rectum and the urethra and the cavities of the digestive and urino-genital systems remain in continuity at the site of the stalk of the allantois, the omission of the three leaflets springing from the circumference of the uro-genital sinus to completely close forms a reasonable explanation of the persistence of an early embryological arrangement, and when the bottom of the proctodeum or anal pit fails to open into the terminal portion of the hind gut we find abundant cause for an imperforate anus. The differences in size of the perineal body can also be explained from the developmental standpoint. So an imperfect and deficient construction either in length or calibre of a portion of the intestine, arising, as Dr. Archambault suggests, from an imperfect or pathological innervation or arterial supply, is easy of comprehension. Variations in the development of the head gut and of those arches which eventually assist in forming the anterior structures of the face explain the numerous deformities found in this region. But any supposition along the lines of an embryological failure in development does not seem to wholly account for the condition found. There has probably been some accidental circumstance in addition. While the position of the cæcum and vermiform appendix might lead one to suppose that the atresía happened well along in the period of gestation, perhaps as Dr. Archambault supposes about the sixth month, the condition, leading up to the division of the small intestine into two separate segments, must have begun to present itself at a somewhat earlier period. At this early time it might be difficult to judge from the naked eye appearances of the lower small gut whether an atrophy has taken place in its walls or a failure of development occurred.

As I think this matter over hurriedly the more likely explanation of the causes which led to the severing of the segments of the intestines arises from the hypothesis of a constricting band of peritoneum possibly in association with an abnormally crossing blood-vessel. I think it is well understood that the folds which result in the formation of the pockets or fossæ associated with the upper end of the jejunum, the lower end of the ileum and the sigmoid flexure of the colon, and whose presence occasionally results in the formation of a retro-peritoneal hernia, are associated at one time or another with blood vessels. It seems to me likely that a fold of peritoneum invested the small intestine at the seat of atresia at a somewhat early period of fœtal life, associated or not with a blood vessel, and which subsequently did not develop coincidentally with the rest of the peritoneum, but resulted. by reason of its strangulating action in a complete severence of the intestine as shown in the specimen. The division with two segments was the more easily accomplished because of the soft and immature condition of the embryological tissue.

Again I desire to congratulate Dr. Archambault on the able and scholarly presentation of his valuable specimen and to give expression to my hope that he may see fit to make a permanent record of both his interesting paper and the unusual specimen which accompanied it.

Correspondence

LETTER FROM GERMANY

MUNICH, *May 8*, 1904.

To the ANNALS:

There is very little doing in the medical universities of Germany during April. The winter semester closes about the end of March and the summer semester opens towards the end of April. In Berlin, and especially Vienna, vacation courses are given more particularly for physicians by the under professors or privat docents, which are advertised several weeks before in the various medical journals. The professors, as a rule, take a vacation at this time and the two large scientific medical meetings are always held during April. The German Association of Surgeons met in Berlin last month and several American surgeons, including Dr. Roswell Park, of Buffalo, were present. The Congress für innere Medicin met in Leipsic, where many interesting papers were read.

The American physicians in Berlin, almost without exception, were studying internal diagnosis and pathology. For the past year or so the American physicians have kept alive an Anglo-American Medical Association in Berlin, which meets regularly each Saturday night, and they listen to a paper given by a professor or privat docent in German and then thoroughly discuss the paper. An alimentary feast then follows the scientific repast. About twenty American physicians are now studying in Berlin and a certain esprit de corps exists among them. They are all most hospitable to a new comer and will give him their best advice as to courses, line of work, etc., and will introduce him to men doing the desired work and to their instructors.

The well known Charité Hospital in Berlin is being rebuilt and when completed will be one of the most sightly and best equipped hospitals in Europe. The nervous diseases, insane and children's divisions are all finished and occupied, while the large new surgical division will be open in a few weeks.

As a medical center Berlin is fast coming to the fore and I will in a later letter compare its advantages to the average American physician with those offered in Vienna.

Dresden has no medical university but it has one of the largest and finest women's hospitals in Germany, with Professor Leopold at its head, and a large and well equipped general hospital. A secret soon learned by foreign physicians is that the best way to obtain medical experience lies not in the taking of many courses but in securing a position as Volontärarzt in some hospital. This simply means a voluntary assistant who generally lives outside but has certain ward duties. These positions are much harder for Americans to obtain now because a new medical law is in effect in Germany which requires each student after graduation to spend one year as Volontärarzt or assistant in some clinic before he is allowed to practice. As the result some of the most desirable clinics are not able to take foreign physicians.

In Dresden, however, Professor Leopold is indulgent to Americans and will receive their applications. There are a few foreigners in his clinic at present but it generally takes months of waiting before a vacancy exists. Professor Leopold is one of the best gynecologists in Germany and is a very excellent operator. Many German surgeons have a rather unfortunate habit of beginning their operations at half past six or seven o'clock and Leopold is one of these early birds. Crédé, the son of the famous obstetrician, is the head of the surgical clinic and like his father is a great advocate of silver. His collargol and ungentum Crédé are used a great deal in Germany.

One of the best equipped babies' hospitals in the world is located in Dresden. A few years ago distinctively babies' hospitals were started to meet a constantly growing demand and the undertaking is only in its infancy. It is often impractical and deleterious to have both sucklings who require wet nurses or bottles and sick children in the same building. Professor Schlossmann, of Dresden, is one of the pioneers in this work in Germany and the present Säuglingsheim testifies to his indefatigable energy along this line. Most of the readers of the ANNALS would not be greatly interested in a detailed description of this hospital so I shall only outline a few of its features. Besides Professor Schlossmann, who devotes about six hours a day to the hospital, there are four resident physicians. Three large and well equipped chemical, physiological and bacteriological laboratories attest the scientific character of the work done here. Dr. Schlossmann is not adverse to taking ideas from America as is shown by the establishment of a training school for nursemaids. Sick infants only are taken and there are forty beds and five incubators. Most of these infants are fed on breast milk from wet nurses who live in the building. A neat milk kitchen is situated in the basement and the public can obtain clean whole milk for houeshold purposes or modified for infants' use. This hospital was only opened last January but it certainly fulfills a great need and will accomplish good results. The charge per infant is from five cents to five dollars a day, according to the means of the parents.

A Suäglingsheim, similar in many respects but with only twenty beds and four incubators, has recently been started in Munich. This hospital was organized under many difficulties and its present efficiency and excellent equipment is due entirely to the untiring work of Drs. Rommel and Meier who have fostered and nourished the enterprise since its conception. Berlin, Vienna and Budapest have within a few months started such institutions and it is a sign of the advancement of medical science along special lines.

Professor Frederick Müller was called to the chair of medicine in Munich, to succeed the well known and much admired Ziemssen. Many people believed that Strümpel, of Erlangen, or Penzoldt would be chosen but Müller, of Basel, was selected. He comes from rather an unusual medical family. His father was a medical man and also a professor and three of his brothers are well known medical authorities. He is rather small in stature, quite bald and has a black mustache that droops down—not up—and has a quick decisive manner. His lectures are all bedside clinics but at the end of the hour he devotes five minutes to demonstrating, by means of a microscopical projection lantern, the lesions in the case presented. If the case is one of pneumonia for instance, he will first demonstrate a section from a normal lung and then the various pathological changes and the various types of the disease. His clinics are overcrowded during the entire semester. The attendance generally falls off at most of the clinics after the first few weeks but there is no difference in the attendance at Müller's clinic and the standing room only sign is out every day. A noteworthy sight at his clinic is the presence of from eight to ten women students. Five years ago such a thing was unheard of in a medical clinic in Munich and even now they have no official recognition and cannot take their examinations here. Professor Müller is responsible for their coming as they are recognized in the Swiss university and a number followed him when he came to Munich. One of the assistants he brought with him was a woman and he has given them caste and a welcome. Professor Winckel is also an advocate of coeducation and women are allowed at his lectures and he often takes them as Volontärarzte. They are tolerated by some of the professors and not received by others.

H. L. K. Shaw

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, MAY, 1904

Deaths

	1901	1902	1903	1904
Consumption	27	24	20	18
Typhoid fever	2	2	0	2
Scarlet fever	1	0	7	1
Measles	2	1	0	0
Whooping-cough	2	0	2	1
Diphtheria and croup	1	5	3	0
Grippe	2	0	7	1
Pneumonia	4	19	15	18
Broncho-pneumonia	3	2	3	3
Bright's disease	15	8	10	16
Apoplexy	9	8	9	2
Cancer	8	9	7	7
Accidents and violence	14	13	5	13
Seventy years and over	15	24	28	23
One year and under	14	20	10	13

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	14	14	8	14
Albany Orphan Asylum	1	1	2	1
Child's Hospital	0	0	0	1
County House	3	3	3	5
Home for Aged Men	0	0	2	2
Home for Friendless	0	0	1	0
Homeopathic Hospital	5	2	3	0
Hospital for Incurables	0	1	0	0
House of Good Shepherd	1	0	0	0
Little Sisters of the Poor	1	0	1	1
Public Places	3	0	0	6
Sacred Heart Convent	1	1	0	0
St. Francis De Sales Orphan Asylum	0	2	0	2
St. Margaret's House	1	0	1	2
St. Peter's Hospital	8	2	0	1
St Vincent's Female Orphan Asylum	1	1	0	0
St. Vincent's Male Orphan Asylum	0	1	0	0

	1901	1902	1903	1904
Total deaths	139	166	151	144
Death rate	16.36	19.53	17.77	16.94
Death rate, less non-residents				16.00
Marriages				28
Births, at term				106
Premature				3
Still				3
Total				112

It is gratifying to note that the death rate has again fallen. The death rate of 16.94 is the lowest death rate in three years for the corresponding month. The non-resident death rate, which in reality is the true death rate for the city, is sixteen, the total death rate being a point higher. There is a tendency towards a decline in deaths from all causes with the exception of pneumonia and Bright's disease. The death rate from pneumonia still remains high, and that from Bright's disease is higher than any year for four years for the month of May. There were eighteen deaths from consumption as against twenty last year for the month of May; twenty-four the year before, and twenty-seven the year before that. While this decrease is extremely gratifying, still a total of eighteen deaths from consumption for the month of May is to be regretted. It is hoped that the public agitation of the treatment of consumption will progress until all communities develop some scheme for eliminating to the minimum deaths from this preventable disease.

It is gratifying to note also that thirty-four plans for new buildings were submitted to the Department for approval.

The usual increase in the number of nuisances complained of is to be noticed. Most of the complaints have been terminated satisfactorily and the orders of the Department complied with. Of the complaints made thirty-one were found to have been made without cause.

During the latter part of May the Department began to make inspections of the mercantile establishments. While few were made during the month of May, the month of June will show a very large number of inspections of these establishments. Twenty-six mercantile and five manufactory certificates have been issued to children during the month.

In the Bureau of Contagious Disease the lowest number of contagious diseases has been reported for the month of May than in any year since 1900. There has been an increase of cases of scarlet fever and a very decided decrease in the number of cases of diphtheria and chicken-pox. But one case of diphtheria was reported during the month. It is evident that a large number of inflamed throats were supposed to be diphtheria, for out of a total of twenty-four tests at Bender Laboratory, twenty-two were found to be negative. Two tests were made for tuberculosis, both of which were found to be positive, but the number of tests made for this disease should be very much larger. These tests are made for the city for physicians without charge to them.

A license was refused to one milkman for the reason that the milk submitted was very much below the standard.

BUREAU OF HEALTH PHYSICIANS

	1902	1903	1904
Assignments	63	81	72
Calls made	355	305	368

INSPECTIONS

In the Bureau of Markets and Milk, forty-three markets were inspected, fourteen public markets, three slaughter houses, five fish markets, four hide houses, thirty-three milk peddlers, twelve milk samples were tested, of which twenty-four tests were made. Sixteen tests were found to be above the standard, six were at standard and two were found below the standard.

DETAIL RESULTS OF TESTS

Butter Fats	Temperature	Sp. Gravity	Corrected Sp. Gravity at 60°	Total Solids
3.6%	70°	32	33.4	12.8
3.2	70	33	34.5	12.6
5.8	62	31	31.3	15.0
3.4	62	30	30.2	11.9
3.6	74	32	34.0	13.0
3.6	64	32	32.5	12.6
3.2	70	32	33.4	12.4
3.4	65	33	33.7	12.7
3.6	68	33	34.2	13.0
3.2	67	31	31.9	12.0
1.3	68	28	29.0	9.0

In the Bureau of Plumbing, Drainage and Ventilation there were 222 inspections made, of which 164 were of old buildings and fifty-eight of new buildings. Inspections were made of forty iron drains laid, thirty connections with street sewers, thirty-six tile drains, one urinal, thirty cesspools, forty-three wash basins, fifty-seven sinks, forty-two bath tubs, thirty wash trays, thirteen trap hoppers in yard, sixty-four tank closets. Two hundred and thirty permits were issued, of which 156 were for plumbing purposes and seventy-four for building purposes. Eleven houses were tested on complaint and nine water tests were made. Thirty-four houses were examined on complaints, of which complaints twenty-four were found valid and ten without cause. Forty-five houses were re-examined.

In the Bureau of Sanitation sixty-two complaints were made, of which five were of privies, five of closets, seven of drains, nine of plumbing, five of water, seven of filthy yards, two of filthy alleys, one of filthy cellars, two of filthy vacant lots, three of filthy premises, of garbage, four of stagnant water, two of odors, and nine others. Ninety-five inspections were made, of which thirty-eight were sanitary and eleven plumbing. Fifty-seven reinspections were made and twenty-eight nuisances were found abated and four cleaned. Thirty-six notices were served and five cases were referred to the Commissioner of Public Safety.

BUREAU OF CONTAGIOUS DISEASES

Cases reported	1901	1902	1903	1904
Typhoid fever	2	7	2	1
Scarlet fever	8	10	13	15
Diphtheria and croup	32	22	23	1
Chicken-pox	6	22	19	3
Measles	61	29	169	21
Whooping-cough	2	2	1	0
Consumption	4	1	2	4
Totals	115	93	228	45

Number of fumigations:
Houses.................... 26 Rooms.................... 56
Number of days quarantined for diphtheria:
Longest........ 33 Shortest........ 13 Average........ 22⅕

ANTITOXIN

Cases of diphtheria reported.............................. 1
Cases in which antitoxin was used........................ 1

BUREAU OF PATHOLOGY

Cultures for diphtheria:	1901	1902	1903	1904
Initial positive	27	22	9	2
Initial negative	72	24	25	22
Release positive	41	23	22	1
Release negative	47	24	12	6
Failed	1	0	7	0
Totals	188	93	75	31

Tests for tuberculosis:
Initial positive 2

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

IN MEMORY OF WILLIAM L. PURPLE, M. D.

A special meeting of the Medical Society of the County of Albany was held in Alumni Hall, on Friday afternoon, May 27, 1904, to take action on the death of William L. Purple, M. D.

The meeting was called to order at five o'clock by the President, Dr. James P. Boyd. Dr. J. M. Mosher was appointed to act as Secretary *pro tem.* There were present Drs. Ball, Bartlett, Boyd, Cook, Curtis, Charles H. Moore, Mosher, Murray, Tucker and Albert Vander Veer.

The President stated the object of the meeting and appointed Drs. Curtis, Ball, Cook and Nellis a committee to present resolutions of respect to the memory of Dr. Purple. Dr. Curtis, as Chairman of the Committee, read the following report:

Mr. President:

The organic laws of this Society contain a provision that is both considerate and wise in the requirement that on the occasion of the death of one of our members the Society shall be called together to take due notice of an event so important and offer that opportunity, which all of us feel impelled to, of giving by our presence and our words expression of our sentiments that are stirred by the sad circumstance.

It is more than a year since we have been thus called together. To-day our members are broken by the death of Dr. William L. Purple, who passed away yesterday, the 25th of May, 1904, after a prolonged enfeeblement from heart disease, at the age of fifty-five. The President has appointed us a committee embracing personal friends and his medical advisors, to make this formal announcement and to voice to some degree the regard of the Society for our deceased associate.

Dr. Purple has been a member of this Society since 1876, a period of twenty-eight years. The year previous he graduated from the Albany Medical College. He was a native of Albany and received his general and special education from the institutions of learning in this city. Our early professional acquaintance with him was in connection with his uncle, who died not many years after Dr. Purple's entry on professional life and with whom he was associated, the genial, companionable Dr. Joseph N. Northrop, so long a practitioner on Arbor Hill. Dr. Northrop, in addition to an extensive practice, conducted a drug store on Second Street, and to both these lines of work Dr. Purple succeeded and has continued in effectively for almost thirty years. He has won the record of being a good neighbor, a good professional associate, a good business man and a good physician.

He was a quiet, undemonstrative man, but he was a very acceptable physician and we have abundant assurance of the kindly regard and high esteem of his worth which were entertained for him by his patients and the families who came under his professional care. He had from all from whom we have had expression the confidence and love of the people with whom he came in the vital contact which it is the especial lot to fall to the general practitioner of medicine.

There seems every reason why this should be so as we have known him. Unassertive of himself, but with quiet self-confidence, he went on in the way of his life, adding year by year the emolument of friendships and friendly confidences which should enrich the life of every one, whether gifted with large talents or conspicuous attainments, or cast in the commonplace mould of most of us. Dr. Purple had a better start in life than many who enter the medical profession in scholastic and social advantage. In the final estimate we find that he was a good man, doing good work, without pretense; and we, his fellow workers in the city and associates in this Society desire that this estimate of his worth be placed upon our minutes with an expression of sincere regret that he is taken away from our number and out of our fellowship.

Dr. BALL then stated that Dr. Purple had an attack of pleurisy eight years ago, which might have been tuberculous in origin. Since that time he had developed arterio-sclerosis, which had lately progressed rapidly so that he appeared prematurely aged. During the last winter he had severe attacks of angina, which had grown more frequently and prostrating and had resulted in his death.

Eulogistic remarks of the character and work of Dr. Purple were made by Drs. VANDER VEER, COOK and TUCKER. The general character of these remarks showed that Dr. Purple had been a patient and industrious general practitioner, that he had been particularly sympathetic in the troubles of his patients, and that during the last few years of his life he had been punctilious to his duty even when suffering severely from the disease that eventually caused his death.

Dr. VANDER VEER moved that the resolutions presented by the Committee be adopted and spread upon our minutes.

Upon motion of Dr. CURTIS the Society adjourned.

J. M. MOSHER, *Secretary, pro tem.*

JAMES P. BOYD, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR MAY, 1904.—Number of new cases, 51. *Classification of cases:* Dispensary patients receiving home care, 3; district cases reported by health physicians, 10; charity cases reported by other physicians, 17; moderate income patients, 21; old cases still under treatment, 34; total number of patients under nursing care, 85. *Classification of diseases* (new cases): Medical, 15; surgical, 2; gynæcological, 2; obstetrical, mothers, 11, and infants, 9; dental, 1; eye and ear, 1; skin, 1; throat and nose, 1. Transferred to hospitals, 6; deaths, 3.

Special Obstetrical Department.—Number of cases, 3; obstetricians in attendance, 2; number of students in attendance, 7; number of Guild nurses, 2. Number of visits by head obstetrician, 22; by students, 17; by Guild nurses, 56. Visits of Guild nurses (all departments): Number of visits with nursing treatment, 567; number of visits for supervision of convalescents, 151; total for month, 718. Four graduate nurses and two assistant nurses in attendance.

Cases were reported to the Guild by three health physicians and by nineteen other physicians. One dentist in attendance.

UNION UNIVERSITY QUARTERLY.—We are in receipt of a new Union University publication, the *Quarterly*. This will be primarily a graduates' magazine, and will publish not only alumni news, but also articles of literary merit and of interest to the layman, contributed chiefly by the graduates and faculties of the various departments. We bespeak for it the encouragement of Union's alumni, for it promises to be a valuable and interesting addition to our publications.

ALBANY CITY FREE DISPENSARY.—The Albany City Free Dispensary Association of this city has issued its annual request for aid. The association, whose membership is made up very largely of the medical profession of the city in association with many of our leading business men, announces that having purchased their building on Westerlo Street, at the corner of Trinity Place, they are now in need of assistance to make some much needed alterations and repairs. The institution is doing a very large work among the poor of the South End of our city and should receive the support of all charitably inclined.

STATE HOSPITAL FOR TUBERCULOSIS.—After several years of endeavor the State Hospital for the treatment of incipient tuberculosis has been so far completed than on July 1st it will probably be opened for the reception of patients. The wings of the hospital are as yet unfinished, but when they too are ready for occupancy the hospital will have a capacity of 150 patients. Applicants for admission here will apply to overseers of the poor and will then be examined by local examiners before their case is acted upon for admission by the hospital trustees. The State has expended $215,000 for the construction of the hospital and has appropriated $55,000 for maintenance. Dr. John H. Prior, of Buffalo, has been appointed superintendent.

A CELEBRATED OPHTHALMOLOGIST IN THIS COUNTRY.—Prof. A. Maitland Ramsay, of Glasgow, Scotland, the official guest of the American Medical Association, which recently met at Atlantic City, was tendered several receptions during his stay in Philadelphia. Dr. Ramsay conducted clinics at Wills' Hospital on the afternoons of the 13th and 14th of June in the presence of many visiting ophthalmologists.

AMERICAN UROLOGICAL ASSOCIATION.—The third annual meeting of this association was held at Hotel Windsor, Atlantic City, N. J., June 8th and 9th, 1904, Dr. Ramon Guiteras, the president, in the chair. A large number of very interesting and valuable papers relating to diseases of the urinary tract were presented and discussed.

PAN-AMERICAN MEDICAL CONGRESS.—The next meeting of the Pan-American Congress will be held in Panama the latter part of December. This congress meets every three years. The first meeting was held in Washington in 1893, the second in Mexico in 1896, the third, which should have been held in Venezuela in 1899, was postponed, on account of the war in that country, and held in 1901 in Cuba. Dr. Albert Vander Veer, of Albany, the vice-president of this congress and one of its organizers, has always been very active in its affairs.

LIBRARY OF SCIENCE AT CALCUTTA.—The need of a public library exclusively relating to medicine has long been felt in the metropolis of India. Such a library was attempted on a large scale a few years since, but was not successful. Dr. H. C. Sarcar, of Calcutta, now announces that he has decided to open to the public his private library, covering a large number of the branches of science in addition to every branch of the healing art. He has requested journalists and authors to make contributions toward it of books or journals and thus those who are interested in the practice of medicine can without cost be assisted in their research.

New York School of Clinical Medicine.—At a recent meeting of the Medical Board of the New York School of Clinical Medicine the following changes were made in the faculty of that school: Dr. J. L. Adams was elected Secretary of the School and professorial and other distinctions were conferred upon the following in the department specified: Mental Diseases, Prof. E. C. Dent, Superintendent, Manhattan State Hospital West; Internal Medicine, Prof, William B. Clark, M. D.; Gastro-Intestinal Diseases, Prof. Robert C. Kemp, M. D.; Hydro-Therapeutics, Prof. Alfred W. Gardner, M. D.; Pediatrics, Assoc. Prof. H. F. Senftner, M. D.; Genito-Urinary Diseases, Chief of Clinic and Assoc. Prof. C. Stern, M. D.; Dermatology, Chief of Clinic and Instructor L. D. Weiss, M. D.

Expert Testimony in France.—The Department of Public Instruction of France has ordered the establishment of an Institute of Forensic Medicine and Psychiatry in Paris. This action has been taken on account of the disrepute that expert testimony by physicians has fallen into in that country. This institute will provide special training and issue a diploma to those who wish to practice as expert medical witnesses in courts of law and it will be under the direction of the most prominent professors of forensic and psychological medicine of Paris. Such special training as this would be a most valuable acquisition for all countries.

Disease Among Metals.—Some prominent metallurgists of Germany have arrived at the conclusion that metals are capable of being infected with diseases. Professor Heyn states that in the injury done to copper by overheating the metal is poisoned with what he terms copper protoxid, a disorder which produces sickness and structural weakness. Steel that has been poisoned by hydrogen becomes as brittle as glass. Another metallurgist finds that there is a tin pest which inhabits roofs. He has also found that when the diseased tin was brought in contact with healthy tin the latter soon became infected and was finally destroyed.

State Requirements for Medical Practice.—The Illinois State Board of Health has just compiled a summary of the requirements of the different states and territories under the jurisdiction of the United States for medical practice and has issued them in the form of a brochure from the press of the American Medical Association at Chicago.

The New England Alumni Association of the Albany Medical College held a quarterly meeting on the invitation of Dr. Abrams at Hartford, Connecticut, June 14. A large number of persons were present, including Dr. Cotter of Poughkeepsie, the president of the Alumni of the college. After a very sumptuous dinner, speeches, stories and incidents of college life with appeals to the Alumni to help raise funds for a new college building, were made. Several prominent physicians of Hartford of the alumni of other colleges made pleasant addresses. A vote of thanks was given to Dr. Abrams for the great courtesy of being his guest, to which he responded, after which arrangements were made for the annual meeting in October at Springeld, Mass.

PERSONAL.—Dr. **ALBERT VANDER VEER** has been honored by the conferring upon him by Columbia University of Washington, D. C., the degree of LL. D.

—Drs. **HERMON C. GORDINIER** and **RICHARD M. PEARCE** have been elected to membership in the Association of American Physicians. Dr. **HENRY HUN** has been re-elected secretary of this society.

—Drs. **C. K. WINNE**, **A. T. LAIRD**, **E. M. STANTON**, **A. W. ELTING** and **H. W. CAREY** have been elected to membership in the American Association of Pathologists and Bacteriologists.

—Dr. **GEORGE BLUMER**, formerly of Albany, has been appointed Associate Professor of Pathology at the Cooper Medical College of San Francisco, Cal., where he now resides. Dr. Blumer is associated in practice with another former member of the faculty of the Albany Medical College, Dr. Lartigau. Dr. Blumer has been appointed Orator in State Medicine for the meeting of the American Medical Association at Portland, Oregon, in 1905.

—Dr. **WALTER LINDLEY**, the editor of the Southern California *Practitioner*, has recently been elected dean of the Medical College of the University of Southern California. This Los Angeles school is now entering its twentieth session. Dr. Lindley was one of the organizers of the school and is Professor of Gynecology in that institution.

—Dr. **WILLIAM H. HAPPEL** (A. M. C., 1890), has removed from 351 South Pearl street to 182 State street, Albany, N. Y.

—Dr. **CHARLES J. BUTLER** (A. M. C., 1895), is at Harpursville, N. Y.

—Dr. **ERNEST A. SWEET** (A. M. C., 1900), is at Housatonic, Mass.

—Dr. **CLAYTON K. HASKELL** (A. M. C., 1901), has been promoted from Assistant to Chief Surgeon of the Soldiers' Home at Bath, N. Y.

—Dr. **WILLIS E. MERRIMAN** (A. M. C., 1902), has been appointed Assistant Surgeon at the Soldiers' Home to fill the vacancy caused by the promotion of Dr. C. K. Haskell to be chief surgeon.

—Dr. **M. F. SHAFER** (A. M. C., 1903), is at Grafton, N. Y.

MARRIED.—Dr. **ELWIN CHAMPLIN** (A. M. C. '02), of Roxbury, N. Y., and Miss Susan Meeker, of Fleischmans, N. Y., were united in marriage at the home of the bride's sister, at Fleischmans, June 1, 1904.

—Dr. **JOSEPH MARK** (A. M. C. '02), and Miss Gertrude Morris, of Amsterdam, were married in New York City, June 19, 1904. Dr. Mark has offices at No. 126 West 117th Street, New York City, where they will reside.

—Dr. **JAMES C. SHARKEY** (A. M. C. '96), and Miss Anna E. Harney were married at Rensselaer, N. Y., June 8, 1904. Dr. Sharkey is in active practice in Rensselaer.

DEATHS.—Dr. JOHN H. TURNER (A. M. C. '45), died at Berlin, Wisconsin, May 26, 1904, aged 85 years.

—Dr. NELSON FANNING (A. M. C. '59), died at his home, Catskill, N. Y., May 17, 1904, from injuries sustained in a fall, aged 63 years.

—Dr. JOHN H. DORAN (A. M. C. '64), died suddenly June 17, 1904, in London, England, of heart disease, aged 62 years.

—Dr. WILLIAM L. PURPLE (A. M. C. '75), died at his home, Albany, N. Y., May 24, 1904.

—Dr. FRANK P. BLAIR (A. M. C. '77), died at Olean, N. Y., about May 23, 1904.

—Dr. CHARLES L. PARKER (A. M. C. '92), died at Onondaga Hill, N. Y., May 23, 1904, aged 47 years.

Book Reviews

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A. M., M. D., Philadelphia, U. S. A., with the Collaboration of WM. OSLER, M. D., Baltimore; JOHN H. MUSSER, M. D., Philadelphia; JAS. STEWART, M. D., Montreal; J. B. MURPHY, M. D., Chicago; A. MCPHEDRAN, M. D., Toronto; THOS. M. ROTCH, M. D., Boston; JOHN G. CLARK, M. D., Philadelphia; JAMES J. WALSH, M. D., New York; J. W. BALLANTYNE, M. D., Edinburgh; JOHN HAROLD, M. D., London; EDMUND LANDOLT, M. D., Paris; RICHARD KRETZ, M. D., Vienna. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels and Carlsbad. Volume IV. Thirteenth series, 1904. Philadelphia: J. B. Lippincott Company. 1904.

Among the articles on treatment, Dr. Louis Julien contributes one of especial interest on "Subcutaneous Injections of Mercury for Syphilis," as he has now used the method for twenty-five years. He prefers calomel when a rapid action is desired and the salicylate of mercury or gray oil when there is less need of quick results. The dose is determined largely by the weight of the patient, and in using calomel five centigrams are given to a patient who weighs fifty kilograms, and one centigram is added for each additional ten kilograms of weight.

In the section on medicine, Sir Dyce Duckworth, M. D., LL. D., contributes a timely article, "On the Importance for Students of Physiognomical Diagnosis in Disease," in which he contends that there is danger that valuable signs may be neglected in the enthusiasm for the more exact laboratory methods. In an article on "Tropical Dysentery," Dr. Andrew Duncan holds that this is not always amoebic dysentery, but may be due to different kinds of infections. In "The Parallelism between the Clinical Symptoms and the Pathological Lesions of Rheumatic Fever," Dr. F. J. Poynton expresses the opinion that we must abandon the view that there is such a disease as acute articular rheumatism, as he believes that rheumatic fever is an infection involving many tissues besides the joints. He shows that under the microscope the lesions are practically the same in the subcutaneous nodule, in pericarditis, in endocarditis and in arthritis, as in each there is a zone of swollen connective tissue, a zone of cellular exudation and a zone of necrosis. In some of the nodules he has found minute diplococci which produced rheumatic fever in a rabbit.

In the surgical section, Doctors Keen and Da Costa report a case of interilio-abdominal amputation for sarcoma of the ilium and give a synopsis of cases previously reported. The patient died of suppression of urine and gangrene thirty-three hours after the operation, and only five of the nineteen cases reported have recovered. In "The Radical Cure of Prostatic Hypertrophy," Dr. J. Albarran is strongly in favor of perineal prostatectomy and gives figures which warrant his enthusiasm. He has done the operation thirty-five times in patients whose average age was sixty-three, and all of whom were infected. One patient with pyelonephritis died five weeks after the operation. In thirty-one cases the histories could be followed, and in twenty-eight of them there was complete recovery, and in two great improvement.

In the section on gynecology and obstetrics, Dr. A. Pinard writes on "Hysterectomy in Acute Puerperal Infection," and states that the operation is rarely indicated, only in cases of decomposition of the retained placenta, putrefaction of a fibroid or of a torn or inverted uterus.

In "The Diagnosis and Treatment of Acute Glaucoma," Dr. E. Valude gives special consideration to the differential diagnosis of this disease, which is one that it is very important the general practitioners should recognize.

R. G. C.

Infant-Feeding in Its Relation to Health and Disease. A Modern Book on all Methods of Feeding. For Students, Practitioners and Nurses. By Louis Fischer, M. D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospitals; Fellow of the New York Academy of Medicine, etc. Third Edition, Thoroughly Revised and Largely Re-written. Containing Fifty-four Illustrations, with Twenty-four Charts and Tables, Mostly Original. 357 Pages, 5¾ x 8¾ inches. Neatly bound in Extra Cloth. Price, $2.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

In the preface of this edition the author makes the statement that "in all, this edition may safely be trusted to aid those in search of practical points in modern methods of breast and bottle feeding." A careful examination of the work certainly justifies this claim, for while there are excellent and well-known practical methods which have been given but little space, it can be fairly said that the work covers the more practical aspects of infant feeding. Of the scientific and theoretical aspects, including the portions on bacteriology and chemistry, as much cannot be said. The portions on technical bacteriology report the results of what was excellent work accomplished ten years ago. It is doubtful whether Booker himself would at the present time attach any importance to his differentiation of the varieties of colon-like bacilli found in the intestinal contents, which the author goes into extensively. The erroneous description of Gram's stain on page forty-one is probably the result of typographical errors. These and similar descriptions of laboratory technique seem to be entirely out of place in a work of this character. Practically all of the chapters and portions dealing with the scientific aspects of the subject consist of inadequate quotations from text-books or journals. Those on any one subject frequently express conflicting opinions, and are altogether unsatisfactory. Frequently one finds practically antagonistic opinions expressed by the author on the same subject in different portions of the book. Even along the practical lines, in which the chief value of the work consists, there is but little attempt to completely treat a given subject in any one chapter, and references to phases of it may be found in almost any portion of the book.

In general, therefore, it might be said that the author has incorporated into the work a considerable amount of his personal experience and much of his reading of the literature, but with only a passing regard for an orderly arrangement, or a satisfactory summarization of the excellent material he had at hand. H. D. P.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition.—The Acid Antointoxications. By Prof. Dr. Carl von Noorden and Dr. Mohr. Authorized American Edition Translated Under the Direction of Boardman Reed, M. D. New York: E. B. Treat Company, 1903.

This monograph on the acid intoxications constitutes Part IV. of the treatises on the disorders of metabolism published by von Noorden and his pupils. As in the preceding volumes on Obesity, Colitis, and Nephritis we have a happy blending of scientific accuracy and practical utility.

The main sub-headings in the books are, the general aspects of acid autointoxication, the sources of acetone bodies, the sites of their formation, non-diabetic and diabetic acidosis, and the therapy of acid intoxications.

Regarding the non-diabetic acid intoxications, which have been prominently before the profession of late, von Noorden has a good deal to say, especially as regards certain defects of observation in the reported cases. He points out that in most of the reported cases the nutrition of the patient is not considered or is subordinated to a minor position, when as is well known certain factors in nutrition, especially the consumption of carbohydrates are of the greatest import in acid intoxication.

In the chapter on treatment he points out the necessity, at some periods in diabetes, of subordinating the attempt to reduce sugar excretion to the attempt at preventing acid intoxication. He also emphasizes the value of alkaline treatment early in diabetes when there are any signs of acetone in the urine. He thinks well of the intra-venous injection of alkalies in diabetic cóma.

We can heartily recommend this book to the profession as a safe and scientific guide in certain aspects of diabetes and autointoxication. G. B.

Current Medical Literature

NEW YORK STATE MEDICAL LIBRARY

Edited by Miss Ada Bunnell, B. L. S.

Hours of opening. The library is open for readers and borrowers each week day from 8 a. m. to 10 p. m., including Saturdays and holidays, except during July and August, when it closes at 6 p. m.

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1. That such precautions be taken in packing, as to guard against any probability of injury in transportation.
2. That the medical library shall not pay postage or express either way.

The library is collecting articles on minute subjects and will be glad to receive gifts of reprints of articles in magazines from auditors or publishers.

Recent Accessions to the Library

ENCYCLOPEDIAS. HISTORIES

Real-encyclopädie der gesammten heilkunde, medicinisch chirurgisches handwörterbuch für praktische aerzte. Wein, 1894-1904. Contents: v. 1-26, real-encyclopädie, A-Z. v. 27, Encyclopädische jahrbücher der gesammten heilkunde, N. S., v. 1. v. 1-28, ed. by Albert Eulenburg.

Puschmann, Theodor. Handbuch der geschichte der medizin. . . . hrsg. von Max Neuberger and Julius Pagel. v. 1-2. Jena, 1902-03.

ANATOMY

Berthe, Albrecht. Allgemeine anatomie und physiologie des nervensystems. Leipzig, 1903.

THERAPEUTICS

Cohen, Solomon Solis—A system of physiologic therapeutics; a practical exposition of the methods, other than drug giving, useful in the treatment of the sick. . . . v. 1-10. Phil., 1902-04.

Humphreys, Frederick. Humphreys' specific manual for the administration of medicine and cure of disease. N. Y., 1900.

PATHOLOGY

Baldwin, David A. Family pocket homœopathist, a concise manual of homœopathic practice for families and travelers. Ed. 3. Rochester, 1894.

Bartlett, Clarence. Text-book of clinical medicine; principles of diagnosis. Phil., 1903.

Osler, William. The principles and practice of medicine, designed for the use of practitioners and students of medicine. Ed. 5. N. Y., 1903.

Delafield, Francis and Prudden, T. Mitchell. Hand-book of pathological anatomy and histology, with an introductory section on post-mortem examinations and the methods of preserving and examining diseased tissues. Ed. 6. N. Y., 1903.

Scott, Richard John Ernst. Questions in pathology and diagnosis asked at the examinations held by the New York State Board of Medical examiners, complete with references and answers to every question. N. Y., 1903. (State board examination series.)

Jamison, Alcinous Berton. Intestinal irrigation; or, Why, how and when to flush the colon, treated in connection with other matters of physiological interest and importance. N. Y., 1903.

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Gowers, Sir William Richard. Subjective sensations of sight and sound, abiotrophy and other lectures. Phil., 1904. (Lectures on diseases of the nervous system. 2d ser.)

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Kocher, Emil Theodor and Quervain F. de. Encyclopädia der gesamten chirurgie. 2 v. Leipzig, 1902-03.

Ambulance work and nursing; a hand-book on first aid to the injured. with a section on nursing. . . . Chicago, 19—.

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Edgar, James Clifton. The practice of obstetrics, designed for the use of students and practitioners of medicine. . . . Phil., 1903.

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ALBANY MEDICAL ANNALS

Original Communications

THE INFLUENCE OF THE FILTRATION OF POTABLE WATER ON THE DEATH RATE OF TYPHOID FEVER.

Read before the Medical Society of the County of Albany, February 10, 1904.

By JOSEPH D. CRAIG, A.M., M.D.,

Professor of Anatomy, Albany Medical College; Health Officer, City of Albany, N. Y.

It has been aptly and truly said that "typhoid fever is the measure of the purity of the water supply." While it has been demonstrated that typhoid fever is occasionally propagated by other means than water, it has also been clearly proved that contaminated water is the common cause of this disease in a vast majority of cases. From the standpoint of the municipality it is a matter of vital interest to that community, that the inhabitants thereof shall be protected from the ravages of typhoid fever. Aside from the loss of population from deaths from a preventable disease, the pecuniary loss in wages and savings to the individual and the family warrants the introduction of any measure which will prevent such loss. It is true that flies and other insects have caused contagion, particularly in southern climates, from contaminated discharges or soil to other individuals, and green vegetables, grown from soil upon which has been deposited typhoid excreta, have also been the cause of occasional cases. Nurses and other attendants in hospitals caring for typhoid cases have been known to have contracted the disease from the careless handling of soiled bed linen and garments used about such patients. The urine as well as the feces is now known to contaminate soil or clothing and must be reckoned with in any sanitary measure, the adoption of which seeks the destruction of all sources of contagion from typhoid patients. However, the propagation of this disease by such means is unlikely, except as the typhoid bacilli, from discharges thrown carelessly on the ground, find their way into potable water. Such means of contagion can be held responsible for only an extremely small proportion of cases. From the standpoint of the municipality they cannot enter largely into the discussion. Otherwise the disease is practically propagated by water only, and the vast number of cases are now recognized to arise from polluted water supplies. While it is undisputed that milk has been the source of many cases of the disease, it is nevertheless true that it is infected water used in the process of cleansing cans or for diluting the milk that is to be really charged with originating new cases of the disease from this source. An investigation into the causes of the outbreak of typhoid fever among the students of Wesleyan College during the year 1894 proved beyond a doubt that raw oysters, containing the specific bacilli of the disease, were the cause of this epidemic. But even so it is still water, polluted by typhoid contaminated sewage, that furnished the true explanation of the presence of this disease in such occasional instances.

In the consideration of the question how best to provide pure water for any community, the problem of preventing contamination of the source of water supply by adequate and effective sewage disposal comes in for a large measure of consideration. But while the question of sewerage disposal is of the greatest interest in any scheme of eliminating deaths from typhoid fever, it is only indirectly applicable to the purpose sought to be accomplished in this paper. If any system of sewage or sewage disposal can prevent the contamination of potable water, such procedure would naturally suggest itself. It is, however, of the influence of water in the propagation of typhoid fever and the consideration of effective methods for improving the water supply, particularly by means of sand filtration, whether such water is largely contaminated by sewage or not, that concerns us particularly to-night.

A brief consideration of the influence of the purification of the water supply of cities, as exemplified in some of the larger cities of the world may be of interest in this connection. In the city of Munich from 1851 to 1859, before the introduction of an improved water supply, the typhoid deaths were twenty-one per 10,000 deaths from all causes, and from 1874 to 1884, after the introduction of an improved water supply from springs thirty-seven miles from the city, the deaths fell to 6.4 per 10,000 total deaths. In the city of Berlin from 1854 to 1872, previous to the purification of the water supply, the typhoid deaths were 9.2 per 10,000 total deaths, but after procuring their drinking water from lakes, the water of which was afterwards filtered through sand, the deaths fell to 2.9 per 10,000 total deaths. In the city of Vienna between the years 1840 and 1844 there were twelve typhoid deaths per 10,000 total deaths and between 1866 and 1873, following the introduction of an improved water supply, the deaths became 2.1 per 10,000 deaths. In the city of Boston between the years 1846 and 1849 there were 17.4 deaths from typhoid fever per 10,000 deaths, while between 1870 and 1884 a reduction to 5.6 per 10,000 deaths followed the use of lake and impounded water. The city of Chicago, taking its water from Lake Michigan, a lake largely contaminated with sewage, and the water of which is used without purification, reported a death rate of eighty-four per 100,000 inhabitants, which during the year 1891 rose to 159. The intake was then extended four miles into the lake with the result of an immediate and marked fall in the number of cases of this disease reported to the health authorities. But the result of forty-six per 100,000 population was not so great a reduction as had been hoped for.

A comparison between the city of Chicago using lake water without filtration and the city of Berlin using lake water subsequently filtered through sand is of interest here. Chicago reduced her typhoid rate from 159 in 1891 to forty-six per 100,000 population by providing a less contaminated water supply, while Berlin, which had a typhoid death rate of 9.2 per 10,000 total deaths before improving her water supply, had as a result of using lake water afterwards filtered through sand a reduction of her typhoid deaths to 2.9 per 10,000 deaths. Or expressed in terms of population, Chicago, from the last available statistics, showed a death rate of forty-six per 100,000 population and Berlin five per 100,000 population.

As I understand that the discussion following the reading of this paper on the influence of filtration of potable water in diminishing the death rate from typhoid fever in municipalities is intended to excite public interest in the question, and is not altogether for the profit of professional men, a brief consideration of the necessity of purifying the sources of water supplies in municipalities is given for the benefit of those not heretofore informed. Epidemics of typhoid fever in communities supplied by public service and unprotected by filtration or other means have more than once originated from the contamination of the sources of supply from even a single case of typhoid fever. From the thoroughness with which the source of contamination has been proved, the two most useful illustrations, for our present purpose, are those of Lausen in Switzerland and Plymouth in Pennsylvania.

The village of Lausen suffered from an outbreak of typhoid fever in 1872, before which time not even a single sporadic case of the disease had been known. After that date and before the disappearance of the disease, seventeen per cent. of the inhabitants had been attacked. Without presenting all the evidence, which at each step seemed to be fully attested and proved, the story in brief is that the disease originated in a farm house in which lived a peasant who had suffered from an attack of typhoid fever after returning from a visit to a distant point. About two months afterwards typhoid fever appeared in all the houses in the village with but six exceptions. These six houses were supplied through private wells, while otherwise the houses in the town were supplied with water from a spring at the foot of a hill on which lived the peasant first attacked with the disease. The excreta from this man thrown upon the ground and contaminating the source of supply, was abundantly proved to have been the cause of the Lausen epidemic of 1872.

The town of Plymouth experienced an epidemic of typhoid fever during the year 1885. This epidemic was also proved by incontestable evidence to have been caused by an isolated case of typhoid fever in an isolated house in which lived a man whose discharges had been thrown near the source of origin of a stream of water supplying that city.

In this connection it is of interest to consider in general the conditions existing in Albany before the introduction of the present filter plant. It now seems certain that the large number of cases of typhoid fever and the consequent large death rate in that city before the introduction of the present sand filters was due to the use of polluted Hudson river water below the outlet of the Mohawk river. The details of the conditions then existing are matters of common knowledge in this section of the country. For many years endemic and epidemic typhoid fever in the city of Schenectady, before the introduction of their present improved source of supply, was without question largely the source of this disease in the cities lower down the Mohawk and Hudson rivers. About the year 1894 the present writer published the results of a collective investigation of epidemic diarrhoeal diseases and typhoid fever in Albany and vicinity. The most satisfactory evidence of the source of typhoid contamination in Albany, as the result of that investigation, was obtained from the conditions about that time existing in the now city of Watervliet. Watervliet, at that time, had two sources of water supply; one from the Hudson river above the State dam, and one from the Mohawk river, in the neighborhood of that city. A large number of cases having appeared in that village and the water of the Mohawk being under suspicion, this source of supply was shut off and Hudson river water alone used. The result was the practical disappearance of typhoid from that community in the course of the next few weeks. After a period of freedom from typhoid the cases began to grow more numerous, when upon investigation it was ascertained that a keeper, without authority, had turned into the water supply Mohawk water which, when again turned off, resulted in a marked diminution of the disease.

We come now to the question of sand filtration in its influence upon potable water. Some illustration of the efficacy of sand filtration may be pertinent to the subject under consideration.

The water companies supplying the city of London have adopted a process of sand filtrate for the waters of the Thames and Lea, with the result that the typhoid death rate has been reduced to fourteen per 100,000 population, which is a most creditable showing, and an average of 97.7 bacteria infection is removed by the filters. The Albany sand filters remove about the same average per cent. of bacterial contamination, and experiments conducted in Massachusetts some years ago on the purification of water by filtration resulted in practically the same percentage of purification.

The cholera epidemic, a water borne disease, like typhoid fever, in Hamburgh in 1892, is now known to have been due to contaminated water and following the introduction of a sand filtration system the city is now free from any considerable number of cases of water borne diseases. While in Hamburgh, during the epidemic, there were nearly 17,000 cases of cholera, the city of Altoona, at that time drawing its water supply below the city of Hamburg from the Elbe, which received the sewerage of 800,000 people and purifying this sewerage contaminated water by sand filtration, was nearly free from the disease.

The city of Lawrence, Mass., was, prior to the year 1903, using unfiltered water of the Merrimac river, into which was poured the sewage of several large cities with an aggregate population of several hundred thousand. For the four years preceding the introduction of sand filtration into this city the typhoid deaths per 10,000 of population was 10.9, and for the four years following the adoption of the sand filtration 2.8. These figures are particularly instructive because they do not differ materially from the statistics in connection with the introduction of the filtration plant in the city of Albany.

A consideration of the statistics of typhoid fever in Albany since 1890 furnishes indisputable evidence of the efficacy of sand filtration in limiting this disease.

From a study of the cases reported we learn that there were ninety-three cases of typhoid fever reported in 1890; 580 cases of typhoid fever reported in 1891; 182 cases of typhoid fever reported in 1892; 175 cases of typhoid fever reported in 1893; 196 cases of typhoid fever reported in 1894; 785 cases of typhoid fever reported in 1895; 438 cases of typhoid fever reported in 1896; 435 cases of typhoid fever reported in 1897; 517 cases of typhoid fever reported in 1898; 515 cases of typhoid fever reported in 1899.

The filtration of the water of the Hudson river first began in November, 1899, and immediately there was noticed a remarkable falling off in the number of cases of typhoid fever reported. There were 167 cases reported in 1900; 118 cases reported in 1901; eighty-two cases reported in 1902; seventy cases reported in 1903.

The immediate results of the filtration of the city water is perhaps most clearly shown by the records of 1899 and 1900, expressed in months:

In January, 1899, there were ninety-eight cases reported; in February, 1899, there were ninety-four cases reported; in March, 1899, there were 127 cases reported; in April, 1899, there were sixty-two cases reported; in May, 1899, there were twenty-four cases reported; in June, 1899, there were twenty-three cases reported; in July, 1899, there were thirty-one cases reported; in August, 1899, there were twenty cases reported; in September, 1899, there were twenty-five cases reported; in October, 1899, there were twenty-five cases reported.

Early in November the filtered water was first used and the reported cases immediately fell to ten cases reported in November, 1899; nine cases in December, 1899; seven cases in January, 1900; eleven cases in February, 1900; thirteen cases in March, 1900; seven cases in April, 1900; eight cases in May, 1900; four cases in June, 1900; eight cases in July, 1900; nineteen cases in August, 1900; thirty-seven cases in September, 1900; eighteen cases in October, 1900.

If a long series of statistics by months be studied, it will be observed that the number of cases of recorded typhoid rise in August and September. It is now known, from the result of a collective system of investigation that a large proportion of these cases are contracted out of the city at summer resorts during vacation time, and are commonly spoken of as "vacation typhoids." It would be a matter of interest to furnish for study only such cases as were known to have contracted typhoid fever while residing in the city, but such statistics are not available.

Equally interesting, in this connection, is the study of the tables of deaths from typhoid fever in Albany. There were fifty-three deaths from typhoid fever in 1890; 100 deaths from typhoid fever in 1891; thirty-six deaths from typhoid fever in 1892; forty-four deaths from typhoid fever in 1893;

forty-three deaths from typhoid fever in 1894; 119 deaths from typhoid fever in 1895; seventy-five deaths from typhoid fever in 1896; eighty deaths from typhoid fever in 1897; sixty-six deaths from typhoid fever in 1898; sixty-nine deaths from typhoid fever in 1899.

Then following the introduction of the filtered water in November, 1899, there were thirty-seven deaths from typhoid fever during the year 1900; twenty-one deaths from typhoid fever during the year 1901; twenty-eight deaths from typhoid fever during the year 1902; nineteen deaths from typhoid fever during the year 1903.

A study of the percentage reduction of typhoid fever deaths to the total deaths is attended with many difficulties on account of a number of variable factors. There has been a marked diminution in the total number of deaths in Albany during the last thirteen years, from an average of 2,411 for the three years 1890, 1891, 1892 to an average of 1792 for the three years 1901, 1902, 1903. This remarkable diminution in the total number of deaths is due to many causes. While the reduced number of deaths from typhoid fever is partly responsible for this fall, the marked diminution of consumption deaths, averaging nearly a hundred less per year; the diminution of diphtheria deaths due to the administration of antitoxin, and a diminution of deaths due to other causes, particularly contagious diseases, are more marked factors in the decline. Seeking a constant factor for the average total deaths, I have thought it just to assume that 2,411 would have been that number had typhoid alone influenced the case. That is, the average typhoid deaths to the average total deaths for the years 1890, 1891, 1892 was 2.6 per cent., and to the same average total deaths for the three years 1901, 1902, 1903, 0.95 per cent. The marked influence of sand filtration in Albany is thus conclusively shown in these figures. Even the typhoid deaths to the total deaths by years, without any allowance made for other factors in the diminution of total deaths, shows a decrease in the percentage of typhoid deaths from 2.3 in 1890 to 1.0 in 1903.

In passing it may be of interest to observe that as a result of tests made daily at the Albany filter plant to ascertain the percentage of bacterial purification of the Hudson river water by the sand filters, the percentage varies from 99.8 to 99.2, with an average of about 99.7. per cent removal of bacterial contamination.

It is probable that the typhoid cases reported and typhoid deaths above given for the city of Albany are somewhat larger than would be the case if filtered Hudson river water and none other was used by all the inhabitants of that city. A proportion of the cases are clearly imported cases and moreover a portion of the city is still using the old gravity supply.

A system of collective investigation by the Albany Department of Health is undertaken, for all typhoid cases reported to it. Among other questions asked are these: "Was the patient away from the city at any time during three weeks previous to this illness?" "What drinking water is used?" "From whom is ice purchased?" "By what milk dealer is milk supplied?" In this way many cases are ascertained to have been contracted from drinking water outside of the city. In a proportion of cases the evidence is direct and positive. Communication by trolley has become so easy and frequent between the cities in this section of the State that a single infected city among them might easily furnish a number of imported cases to any of the others. The evidence of some such cases is a matter of record. It is believed that the number of cases of typhoid fever contracted in Albany from the use of filtered river water is at a minimum, and that the results obtained in that city by sand filtration will compare favorably with that of any city in the world where conditions are at all similar.

It is to be remembered that filtered water is not supplied to all the inhabitants of Albany. Part of the city is still supplied from the original gravity system of water supply obtained from the sand plains west of the city. But as this supply has been utilized for many years and has been a constant factor, the improvement in the typhoid statistics can be credited entirely to the filtration of river water. All that section of the city of Albany east of Pearl street is supplied by water from the gravity supply. All that section of the city, in general, between Pearl street and Swan street is supplied by water in part filtered and in part from the gravity supply. All the section of the city west of Swan street receives in general filtered river water. It has been recently suggested that the present filtration plant be enlarged to a capacity sufficient to furnish the entire city with an abundance of filtered water, so much confidence have the inhabitants of that city in its filtered water supply. What the influence of such an improvement would be on the typhoid rate can only be conjectured.

Sufficient proof has been offered in the present paper, I think, to show the marked influence the introduction of filtered river water has had in diminishing both the typhoid cases and typhoid deaths in Albany, since the use of such water began in November, 1899. An average of 285 cases of typhoid fever per year for the years 1890, 1891, 1892, and an average of 489 cases a year for the four years preceding the introduction of filtered water falls to an average of 109 reported cases for the four years following such introduction. A typhoid death rate of 2.3 per cent. to total deaths for the years 1890, 1891, 1892 becomes .95 per cent. for the years 1901, 1902, 1903. If statistics prove anything, this abstract from the records shows conclusively the efficacy of the Albany filter plant in protecting the people of Albany from the ravages of typhoid fever.

CONCERNING THE SPECIFICITY OF THE SOMATOGENIC CYTOTOXINS.*

Presented at the Fourth Annual Meeting of the American Association of Pathologists and Bacteriologists, held at New York, April 1st and 2nd, 1904.

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Introduction—Methods—Observation of immunized animals—On the action of anti-sera obtained by the injection of (*a*) red blood cells, (*b*) liver, pancreas, adrenal and kidney containing blood, (*c*) the same organs free of blood, (*d*) blood serum, (*e*) urine, and (*f*) bile—Controls with normal serum—Relative toxicity of the various sera—Summary and Conclusions—References.

INTRODUCTION

This study was undertaken with the object of demonstrating, by a comparative study of the somatogenic cytotoxins, that the

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* This study has been conducted under a grant from the Rockefeller Institute for Medical Research.

action of any given cytotoxin depends on the chemical (receptor) organization of the cell and not upon morphological characteristics; that an artificial anti-serum may have a definite toxic action on several types of cells of widely differing morphology but presumably having in part at least common receptors; that specificity in the sense of morphological affinity is of secondary importance and in the case of some sera may not exist; that many of the results supposed to be due to the specific action of one cytotoxin are due rather to other cytotoxins adventitiously elaborated as the result of improper methods of immunization.

My attention was first attracted to these various phases of cytotoxic activity by some observations made in the course of an experimental investigation of nephrotoxins.* I found that by the usual method of immunization, that is, the injection of the kidney with its contained blood, a serum strongly haemagglutinative and haemolytic was produced and that the haemoglobinuria resulting from the injection of this serum entirely obscured any nephrolytic action it might possess. The haemagglutinative element of the serum also caused the agglutination of the red blood corpuscles; the thrombi thus formed occluding the vessels of the liver with resulting focal necroses of that organ. It was therefore evident that many of the results previously reported as due to a specific nephrotoxin or hepatotoxin were due to haemagglutinins or haemolysins forming in animals improperly immunized. To obviate this difficulty blood-free kidney was used in the immunization with the surprising result that although the serum thus obtained was powerfully nephrotoxic, it was also, in a moderate degree, haemagglutinative and haemolytic. It did not however cause haemoglobinuria. Moreover hepatotoxin, so-called, prepared in like manner possessed similar characteristics but exerted no special action upon the liver.

At this time an extended investigation of the literature indicated that immunization with "washed" or blood free organs had in no instance been practiced. It was evident therefore that a study of cytotoxins by this method of immunization might yield results differing widely from those of previous investigations and possibly of fundamental importance in connection with the question of the specificity of these substances. Before taking up the detailed discussion of this work, it may be well to summarize the more important communications upon the question of specificity.

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* PEARCE. An Experimental Study of Nephrotoxins, *Univ. of Penna. Med. Bulletin*, 1903, xvi, 217.

In the vast amount of literature which has accumulated the predominating feature is the effort to demonstrate a morphological affinity. This is especially evident in the early work which neglects to a great extent the question of chemical (or receptorial) structure. Due consideration has not been given to the very clear and definite statements of Ehrlich and Morgenroth concerning specificity. v. Dungern and Mexter produced anti-sera for ciliated epithelium and testicular cells and found them to be also haemolytic. On account of these results they denied a strict specificity to the cytotoxins. Metchnikoff and Metalnikoff, on the other hand, believing in this specificity, endeavored to explain the double action on the supposition that sufficient red blood corpuscles were injected with the epithelial cells to produce an haemolysin.

Of wider interest is the production of haemolysins by injecting body fluids entirely free of red corpuscles. v. Dungern, Besredka, Tschistovitsch, Müller and Morgenroth by injecting blood serum, and Shattenfroh, Buffer and Crendiropoulo by injecting urine have obtained such. v. Dungern produced an haemolysin also by injecting cow's milk, and recently Portis has obtained a like result by injecting the "colloid matter" of the thyroid. These observations, at first glance opposed to the theory of specificity if considered from the point of view of morphology, are explained by Morgenroth by the presence of free receptors in the blood and urine. These free receptors, as first announced by Ehrlich, appear in these fluids, especially the blood, as the result of the cell changes accompanying normal metabolism. Thus it is possible for receptors of all cells of the body to be present in the blood serum. Naturally, immunization with fluids containing these receptors would result in the formation of specific anti-bodies. Morgenroth therefore draws the conclusion that specificity is a matter not of cells but of receptors, whence a given cell may be in chemical conformity with cells of a different organ or perhaps animal. Recent investigations of anti-thyroid serum (Yates, MacCallum, and Portis) and of anti-adrenal serum (Abbott, Yates) indicate that these have little or no specific action. Unwashed adrenal serum, however, Abbott found to be possessed of a definite haemolytic power; Portis found the same to be true of washed thyroid serum.

In order to study this much debated question of specificity in a somewhat comprehensive manner a comparative investigation of several cytotoxins, as outlined in the introductory summary, was undertaken.

METHODS

The animals selected for this study were the dog and the rabbit; the latter being immunized with the cells and fluids of the former. The method of immunization adopted was that followed in the work on nephrotoxins. All injections were made into the peritoneal cavity at intervals of a week or ten days, the animal being bled a like period after the third, fourth or fifth injection. Preliminary bleedings were made from the jugular veins; the final bleeding from the carotid arteries. The serum thus obtained was injected into the saphenous, occasionally the femoral vein of the dog. In determining the specific effect of these various sera, systematic examinations of the urine and detailed gross and histological studies of the several organs have been made; their action upon red blood corpuscles has been determined *in vitro*. Attempts were also made to determine by the test-tube method the action of the various sera upon emulsions of the several types of parenchymatous cells; but the results were so confusing and contradictory that this method was early discarded in favor of intravenous injection. This method, analogous to pharmacological methods, of testing the action of a serum by its effect on the living cells is, I believe, the only method free of error. Moreover, it is by this method alone that the cytotoxins may be utilized to explain various pathological processes, for while tests *in vitro* may establish the theoretical principles of this method of investigation, substantial progress depends on the experimental application to the living cell in its normal environment.

Some information concerning what may be called the more general action of a serum has been determined by observing fluctuations in body weight; and of the relative lethal action, by a comparative study of dosage.

The histological methods include hardening in Zenkers, Müller's and Fleming's solutions; imbedding in celloidin and paraffin; and staining by haemotaxylin and eosin, methylen blue and eosin, Mallory's connective tissue stain and saffranin. The various fresh methods have been utilized in the study of fatty and pigmentary changes.

OBSERVATIONS OF IMMUNIZED ANIMALS

Contrary to general opinion the rabbit may readily be treated with various animal cells and fluids if due attention is paid to cleanliness and to the condition of the animal as shown by fluctuations in body weight. In this series the only deaths occurred among rabbits receiving bile and unwashed liver. Fifty per cent. of the animals treated with these substances succumbed before the third injection. This result is apparently due to the toxicity of bile, for no difficulty was encountered in animals receiving washed liver, blood corpuscles or blood serum. The kidneys of animals dying within a few days after the injection of bile exhibit a well marked degeneration of the convoluted tubules with deposition of a yellowish pigment.

Necrosis and suppuration of the subcutaneous tissues may occasionally occur after the injection of organ emulsions; while encapsulated masses of the injected material in the peritoneal cavity are not infrequent. In one instance after injection of pancreas emulsions fat necroses of the mesenteric, perirenal and pelvic fat were observed.

The changes in the urine are but slight; a heightening of color may occur not uncommonly after injections of blood and adrenal; slight traces of albumen are infrequently found; glycosuria, transitory and of slight degree usually follows the injection of adrenal.

The several organs of these various animals with the exception of those receiving bile, exhibited no histological changes of any moment.

ACTION OF SERUM RESULTING FROM THE INJECTION OF ERYTHROCYTES

While the action of haemolytic sera *in vitro* is well known, little attention has been paid to the changes resulting from its injection into the living animal. Kraus and Fukuhara only, as far as I am aware, have described the histological changes. As such observations are essential, as controls to the experiments to follow, I have made a careful study of this phase of the subject. Rabbits were immunized with defibrinated and washed blood respectively, receiving three to five doses of five centimetres each. Whether defibrinated blood or washed corpuscles are used appears to make no difference in the potency of the serum. Seventeen dogs have received this serum, intravenously, in doses varying from 1:3000 to 1:450.* The effect varied with the dosage. In large amounts (1:600 to 1:400) death usually occurs in from three to fifteen hours. Post-mortem examination of dogs poisoned in this way show the blood to be laked and soft gelatinous clots to be present in the heart and large vessels. The internal organs especially the liver, are intensely congested; the serous cavities may contain a small amount of blood tinged fluid. If the bladder contains urine it is dark claret colored, rich in albumen with a sediment composed of casts, coalesced masses of altered haemoglobin and granular and fatty renal cells. Histological examination reveals agglutinated red blood corpuscles in the various organs; the vessels of the spleen and liver are intensely congested, the cells of the latter often being compressed and disorganized; beginning necrosis of liver cells is not infrequent. The kidney tubules present a wide-spread fatty metamorphosis; their lumina contain altered haemoglobin in the form of casts or irregular granular material; the tissue spaces are oedematous and an accumulation of coagulated serum may be seen in the glomerular spaces.

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* This method of indicating the dose refers to the relation between the amount of serum injected and the weight of the animal. Thus 1:525 indicates that a dog weighing 6300 grammes received 12 c. c. of serum or 1 c. c. to 525 grammes of body weight.

The smaller doses of 1:1000 to 1:700 are usually not fatal; but the dogs develop within eighteen to twenty-four hours a haemoglobinuria which persists for three to five days. After the disappearance of the haemoglobin the urine is still high colored and deeply stained with bile. A yellow jaundiced condition of the conjunctivae is a constant symptom. The albuminuria which accompanies the acute condition rapidly diminishes as the urine becomes clear of blood pigment although it may be detected by the heat test for many days; in one animal persisting for three weeks. The urinary sediment contains the products of the destruction of red blood corpuscles and usually many renal cells. Beginning with the second or third day a few casts of the finely granular type are found, but not invariably. Hyaline liver necroses* due to agglutinated red blood corpuscle thrombi are constantly present in these animals. Equally constant is a fatty degeneration of the kidney, which is most marked in the tubules of the medullary rays. Hemorrhages into the adrenal occurred in two of the seventeen animals. They were also found occasionally in the lung.

With doses as low as 1:1200 to 1:3000 haemoglobinuria does not always result, but the urine is bile stained and contains albumen. Changes similar to those described above but less marked may occur in the liver and kidney.

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* This condition has been the subject of especial investigation and will be considered in detail in another communication.

The attempts to produce haemolytic sera with small amounts of blood have been of great interest. These were undertaken for the purpose of controlling sera prepared by injecting organs (adrenal) which contain an amount of blood so small that it has heretofore been considered negligible. A series of rabbits receiving 0.1 cubic centimetre of defibrinated blood yielded, after the second injection, a serum which was moderately agglutinative and haemolytic *in vitro;* after five injections the serum was immediately and powerfully agglutinative and haemolytic. This serum injected into dogs in doses of 1:550 to 1:345 causes haemoglobinuria, multiple liver necroses, fatty degeneration of the kidney and other changes, including adrenal haemorrhages, similar to those produced by sera prepared from larger amounts of blood. One dog, receiving a dose of 1:350, died in four hours with evidence of extensive thrombosis due to agglutinated red blood corpuscles.

SERUM FROM UNWASHED ORGANS (KIDNEY, LIVER, PANCREAS AND ADRENAL)

In this series the serum was prepared in the usual manner by injecting emulsions of the unwashed organ, that is, with the normal post-mortem blood content. Four to twelve grammes were used at each injection of kidney, liver and pancreas; while animals immunized against adrenal cells received a pair of the organs at each injection. The experience of Yates in the production of adrenal serum indicates that a larger amount of adrenal tissue has no appreciable effect on the character of the serum.

All these sera, naturally, contain haemagglutinin and haemolysin. The liver, kidney and adrenal sera injected into the dog in doses of 1:900 to 1:300 produce similar changes which, moreover, cannot be distinguished from those due to a pure haemolytic serum. Haemoglobinuria, liver necroses, fatty degeneration of the kidney and deposition of blood pigment in spleen and lymph nodes are constant. Only in the case of the kidney serum was a dual action evident. Here, the persistence of albumen and a larger number of casts (granular, epithelial and fatty) after the disappearance of the haemoglobinuria indicated the action of the specific nephrotoxic constituent. This serum saturated with washed red blood corpuscles at zero temperature lost all but a trace of its haemolytic power but was still powerfully nephrotoxic.

No changes occurred in the liver or adrenal which could be ascribed to their supposedly specific sera. The kidney serum in one instance produced focal hemorrhages in the adrenal; the adrenal serum similar lesions in the lung.

The pancreas serum in doses of 1:800 to 1:390 did not produce haemoglobinuria but a persistent albuminuria with fatty degeneration of the kidney. The strongest dose given (1:390) caused also well marked focal necroses of the liver with evidence of red blood cell thrombosis. No change in the pancreas cells could be demonstrated.

Of these four sera that prepared from adrenal appears to be the most toxic, causing death in less than twenty-four hours in dose of 1:400.

It will be seen from this summary that these sera, with the possible exception of nephrotoxin, produce lesions which differ in no way from those due to a serum prepared from erythrocytes and that they may all readily be explained by the action of haemagglutinin or haemolysin.

SERA PREPARED FROM WASHED ORGANS (KIDNEY, LIVER, PANCREAS AND ADRENAL)

In this series the blood, lymph and the various secretions with their free receptors were removed from the organs by prolonged washing with warm, sterile salt solution. After this procedure it was assumed that only the cells with their fixed receptors remained. The kidney was readily washed through its arteries; the adrenal, pancreas and liver at one time through the abdominal aorta; the clearing of the liver vessels was augumented by washing also through the portal vein. The success of this procedure was tested by immediate examination of the respective organ emulsions and later by examination of hardened sections of the organs. Kidney, adrenal and pancreas, absolutely blood free, were readily obtained; a very few red cells (one or two in three or four fields) were always found in the liver emulsions, despite the most thorough washings with fifteen to twenty litres of salt solution. These cells, however, appear to have had little influence upon the character of the serum produced.

All sera resulting from the injection of these blood free emulsions have the power of agglutinating and haemolysing red blood corpuscles *in vitro*. The agglutination in all instances is immediate and powerful. The haemolytic activity of the adrenal serum is almost equal to that of serum prepared from red blood corpuscles; liver, pancreas and kidney sera are less powerful, their relative strength being in the order named. None of these sera on the other hand are sufficiently powerful to produce haemoglobinuria when injected into the circulation of the dog. My experience is different from that of Portis, who has recently described a serum prepared from washed thyroid, which is haemolytic *in vitro* and in animals produces haemoglobinuria.

The only one of these sera which has a definite action in the sense of morphological specificity is nephrotoxin. The action of this cytotoxin I have recently described in detail, and only a general summary is now necessary. Doses of 1:1600 to 1:500 produce severe albuminuria and cast excretion. The casts are finely granular, and less frequently fatty, epithelial and hyaline; granular and fatty renal cells are usually abundant. The albumen gradually diminishes in amount, but may persist in faint traces for two weeks or more; the casts usually disappear within twelve to fifteen days. The kidney is swollen and oedematous with slightly adherent capsule. On section the cortex is oedematous and pale yellow in color with occasionally a few punctate haemorrhages; the glomeruli are distinct but pale. Histologically the cells of the convoluted tubules are found to be swollen and granular; the cells of the tubules in the medullary rays are vacuolated and osmic acid preparations reveal extensive fatty metamorphosis; the tubules especially those of the pyramids contain much granular material and many casts. Exudation into the glomerular space and hyaline thrombosis with degeneration of the glomerular tuft may occur. With the exception of the liver, which in some animals exhibited extensive granular degeneration no other organs appear to be affected by this serum.

The action of the so-called hepatotoxin is variable. In doses of 1:1000 to 1:525 its chief action is to cause a more or less extensive fatty metamorphosis of the kidney. This may or may not be accompanied by albuminuria; in two experiments the albuminuria was equal to that resulting from the administration of nephrotoxin and abundant excretion of casts was present. That definite changes are produced in the liver by this serum is not easily determined. The only change observed was an increased granulation of the liver cells with occasionally slight fatty transformation. This appearance however does not differ from that frequently seen in the liver of apparently normal dogs and is quite constant after the administration of other anti-sera, especially adrenal serum. Focal necroses of the liver due to this serum I have seen in but one instance. These were few in number and followed the administration of a powerful dose (1:266) of a strongly haemagglutinative serum. As agglutinated masses of red blood corpuscles could be seen in the vessels of the necrotic areas, I consider this action to be due to the agglutinin present and not to a hepatotoxic constitutent of the serum. The necroses described by Delezenne and others working with serum prepared from the unwashed organ may, I believe, be explained in like manner. The changes in the urine described by Delezenne I have not seen.

Adrenal serum in doses of 1:700 to 1:550 produces no lesion of the adrenal gland; but well marked granular and fatty transformation of liver and kidney. One animal, killed forty-eight hours after a dose of 1:556, presented multiple minute haemorrhages of the lungs and liver with free haemorrhages into the glomerular spaces of the kidney. A peculiar phenomenon observed in all animals receiving adrenal serum was an immediate blanching of the mucous membranes with cardiac and respiratory disturbance. This condition, which lasted fifteen to twenty minutes and necessitated the employment of artificial respiration, was not observed in animals receiving other cytotoxic sera. Unfortunately a kymographic study of this condition was not made.

Washed pancreas serum produces in doses as high as 1:620 no recognizable changes in the pancreas and but moderate granular and fatty metamorphosis of the liver and kidney. The transitory glycosuria described by Surmont and by Carnot and Garnier I have not seen. Their injections were made, however, directly into the pancreas; the glycosuria therefore may have been the result of trauma and analogous to that observed by Flexner and Pearce to follow various injuries to the pancreas.

SERA PREPARED BY INJECTING BLOOD SERUM, BILE AND URINE

As has been stated above, several investigators have produced haemolytic sera by immunizing animals with blood serum, urine and other fluids free of red blood corpuscles. This result Morgenroth explains is due to the presence of free receptors normally constitutents of the body fluids. In order to determine if sera thus prepared contain cytotoxins for cells other than red blood corpuscles; also to control other experiments of this series, I have injected rabbits three to five times with the blood serum, bile and urine of the dog in doses of five to ten cubic centimetres.

All three sera thus prepared are strongly haemagglutinative. The serum produced by injecting urine is powerfully haemolytic, that by injecting serum, moderately haemolytic, while the "anti-bile" serum has no haemolytic power whatever. This peculiarity of "anti-bile" serum has been observed recently by Ruffer and Crendiropoulo, and is apparently to be explained by the production of anti-haemolysin, the bile being naturally haemolytic.

"Anti-bile" serum in doses of 1:620 and 1:700 causes fatty degeneration of the kidney and focal necroses of the liver. These latter are accompanied by agglutinative red-blood corpuscle thrombosis and apparently due to a mechanical disturbance of the liver circulation. No changes are found in other organs.

The serum of rabbits receiving dog's serum injected in doses of 1:1000 to 1:390 causes extensive fatty degeneration of the kidney with sometimes slight traces of albumen in the urine.

The serum of rabbits receiving dog's urine produces in the dog a distinct congestion of the liver; otherwise no appreciable changes of either tissues or excretions follow doses as high as 1:674.

CONTROLS WITH NORMAL RABBIT'S SERUM

Normal rabbit's serum injected in doses of 1:1320, 1:900, 1:600, 1:500 and 1:300 was without influence on the urine or histological structure of the various organs examined (kidney, liver, pancreas and adrenal).

RELATIVE TOXICITY OF THE VARIOUS SERA

An attempt has been made in addition to the above described methods of study to gain some idea of the relative toxicity of the various sera by a comparison of the changes in body weight and of the varying periods of time elapsing before fatal termination. Little information has been obtained by the study of changes in weight, for while a loss of weight is more or less constant, there is little variation according to the kind of serum injected, except that an appreciably greater loss of weight occurs in animals receiving sera which produce albuminuria (nephrotoxin) and haemoglobinuria (haemolysins produced by defibrinated blood and unwashed organs).

Death followed only after the use of sera prepared from red blood corpuscles and from blood containing organs. With the exception of the powerful nephrotoxin, prepared from washed kidney cortex, described in a previous communication,* death has never resulted from the injection of sera prepared from washed parenchymatous cells or from blood-free body fluids. There is apparently considerable difference in the toxicity of the haemolysin produced by the injection of red corpuscles and those produced by washed parenchymatous cells; washed adrenal serum, for example, the haemolytic power of which *in vitro* is almost as great as that of true haemolysin has never caused death. On the other hand, it is of interest that the lethal power of a serum produced by blood injected in 0.1 cubic centimetre doses is almost as great as that following the injection of five cubic centimetre doses The former has caused death in four hours, in dose of 1:350; the latter in three hours, in dose of 1:450. With these sera may be compared the unwashed adrenal serum which caused death in less than twenty-four hours in dose of 1:400. These results indicate that as a general rule the power of a serum is not increased by large immunizing doses.

SUMMARY AND CONCLUSIONS

From these experiments it is evident that the cells of the various organs of the body while differing in morphology and function have certain receptor characteristics in common and that one type of cell may therefore produce anti-bodies affecting several cells of differing morphology but with like receptor groups. This is shown by the sera prepared from washed liver, kidney, pancreas and adrenal, all of which agglutinate and haemolyse red blood corpuscles, and may cause degenerative changes also in the liver and kidney. Some of these cytotoxic sera have no effect upon organs for which they are supposed to have a morphological affinity, but exert a powerful lytic influence upon other cells. Aside from nephrotoxin, which has a distinct injurious action upon renal epithelium the various cytotoxins studied have no specific action in the morphological sense. The action of the kidney serum itself cannot be said to be specific, for in addition to the nephrotoxic element another constitutent (haemolysin) is present. The action of this serum might perhaps be described as "special." Pancreas and adrenal serum on the other hand are devoid even of special action, while the lesions of so-called hepatotoxin are doubtful and may be produced by other sera. The striking characteristic of adrenal serum is its powerful haemolysin.

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* *Loc cit.*, page 228.

The presence of free receptors in the various body fluids is shown by the appearance of anti-bodies in the serum of animals receiving serum, bile and urine; the diverse character of these receptors by the variety of cytotoxins thus formed. These observations offer strong support of the view that specificity is a function of receptors and not of cells.

A comparison of the results obtained by sera prepared from washed organs with those of sera prepared from blood and blood containing organs indicates that many of the positive results described as specific and characteristic of the action of certain cytotoxins are due rather to haemagglutinin and haemolysin adventitiously formed as the result of impure methods of immunization.

In connection with the activity of haemolysin it is also necessary to differentiate sharply between the primary specific action upon the red blood cells and the secondary action upon other cells, as those of the kidney, due to the toxic effect of haemoglobin derivatives and possibly other substances set free by the destruction of the red blood cells.

Another phase of the question, heretofore entirely disregarded, is the part played by haemagglutinin. This substance was present in all the sera studied, and in some, when sufficiently powerful, caused the formation of red blood corpuscle thrombi and a resulting mechanical disturbance of the circulation leading to degeneration, necrosis and haemorrhage. This action is best illustrated by "anti-bile" serum which is without haemolytic power, but through its powerful agglutinin causes the formation of red blood corpuscle thrombi and thus the production of widespread liver necrosis. Such lesions have heretofore been confounded with the action of the cytolytic constituent of a serum, and have been considered specific while they are in truth due to the much simpler agglutinating body.

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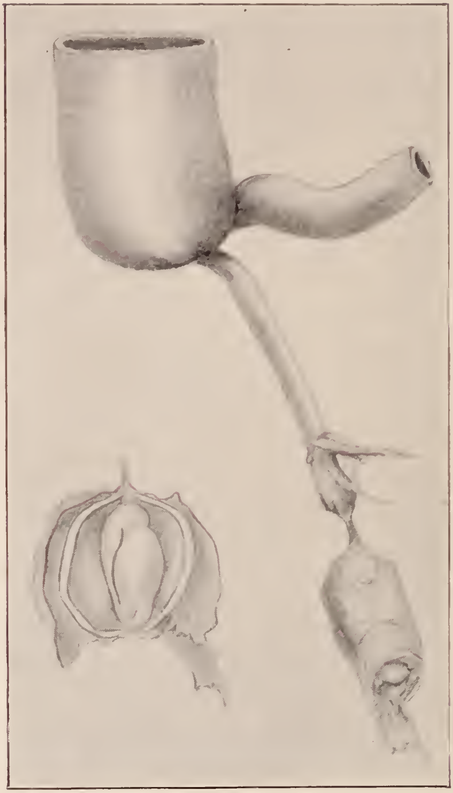

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INFANTILE INGUINAL HERNIA OF THE VERMIFORM APPENDIX WITH ADHESION TO THE EPIDIDYMIS.*

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Hernia of the appendix is not rare, but it is uncommon. Morgagni, in 1750, was, perhaps, the first to make reference to it. Scarpa reported several cases in 1806, after which we have series of cases reported by Klein, Brieger, Bajardi, Rivet, Gibbon, and others, until, in 1899, Peterson was able to collect 116 published cases, while Piersol, in 1901, estimated the number of reported cases as 125. That it is more frequent than the number of reported cases would lead one to believe appears from the fact that Coley found hernia of the appendix, without the presence of other portions of the intestinal tract, five times in 351 operations for femoral or inguinal hernia.

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* Previously published in briefer form in the *Archives of Pediatrics* (March, 1904) to which journal we are indebted for the use of the accompanying cut.

Hutchinson classifies hernia of the appendix into two divisions, congenital and acquired. The congenital form is always inguinal, and almost invariably occurs in the male sex and on the right side. In this form it is the rule to find adhesions between the appendix and some of the remains of the processus vaginalis—either to the wall of the sac, the cord or to the tunica vaginalis. The origin and significance of these adhesions have been the subject of much speculation. They have been ascribed to the persistence of folds of peritoneum normally present in fœtal life; or as the result of fœtal peritonitis, the frequency of which is upheld by Virchow, B. Schmidt, Orth and others; to the persistence of certain fibres of the gubernaculum; and they have also been considered as of post-hernial origin. There seems to be little doubt that in some of the cases these adhesions, by uniting the appendix to the migrating structures, have enabled the same forces which bring about the descent of the testicle to also play an active part in causing the descent of the appendix into the inguinal canal.

In support of the view that these attachments may originate in fœtal folds of the peritoneum may be cited the fact that previous to the descent of the testicle into the inguinal canal the peritoneum overlying the testicle encloses it and forms a mesentery, the mesorchium, which also encloses the gubernaculum and forms two folds, one above the testicle and the other below it. The one below the testicle encloses the lower part of th gubernaculum, and is known as the *plica gubernatrix;* the one above the testicle is not constant, but when present usually covers the spermatic vessels and is known as the *plica vascularis.* Hutchinson states that at the time the testicle passes into the inguinal canal this ascending band or ridge of peritoneum can be found in about ten per cent. of all cases: its upper attachment varies; usually it is to the under surface of the mesentery of the lower end of the ilium, less commonly to the cæcum or vermiform appendix. A similar band is much more frequently found in females (fifty per cent. of all cases, according to Hutchinson), in whom it persists as the well-known appendiculo-ovarian ligament. The presence of this band with rigid superior attachments has been given as a cause of incomplete descent of the testicle.

As is well known, the testicle develops opposite the second or third lumbar vertebra, from which point it descends during the third month, by the end of which time it has reached the internal ring. It remains in this position until near the close of gestation or, according to some authors, enters the processus vaginalis as early as the middle of the seventh month. The position of the appendix is high in the abnominal cavity until the descent of the cæcum, which occurs about the sixth month, but, owing to the relatively great length of the appendix in the fœtus (eleven millimetres in each of two twelve centimetres fœtuses examined by us), it is at all times capable of coming in contact with the peritoneum covering the testicle. It is thus seen that inflammatory conditions occurring in either the appendix or the testicle could result in the formation of adhesions between the appendix and the migratory peritoneum covering the testicle, and thus cause the descent of the appendix along with the testicle.

The following case, occurring in the service of one of us (Shaw) at the Albany Orphan Asylum, is of interest in that it represents a case of congenital hernia of the appendix, in which the descent of the appendix into the inguinal canal was undoubtedly caused by an early inflammation which involved both testicles, together with their peritoneal covering, and which resulted, we believe, in the formation of an adhesion between the distal end of the appendix and the tunica albuginea overlying the head of the right epididymis.

Sidney P., born November 10, 1902; admitted to the Albany Orphan Asylum January 31, 1903; died October 29, 1903. While under observation in the Asylum there were no symptoms referable to the appendix or genital organs; the patient dying of broncho-pneumonia following measles.

The following notes are from the autopsy protocol (Stanton):—

Abdomen—Abdomen is free from fluid. Omentum contains very little adipose tissue. Serosa smooth and glistening. Appendix is eight centimetres long and extends directly downward with free meso-appendix from caecum through internal ring and inguinal canal and is so united by adhesions to the testicle that the latter can be drawn up into the inguinal canal by traction on the appendix.

When the testicle is in normal position there is a slight evagination of the peritoneum around the appendix at the right of the internal ring; otherwise the funicular process is completely obliterated and there is no evidence of a hernia sac.

On dissecting out the appendix it is found that the portion lying within the canal is covered with a loose areolar tissue while a thick band of firm fibrous tissue unites the tip of the appendix to the tunica albuginea overlying the head of the epididymis.

Testicles—The parietal and visceral layers of the tunica vaginalis of both testes are distinctly thickened.

Anatomical diagnosis—Bilateral broncho-pneumonia. Cloudy swelling of liver and kidney. Acute congestion of spleen. Congenital hernia of appendix with adhesions between epididymis and appendix. Chronic bilateral peri-orchitis.

Microscopic examination—Sections from the left testicle show extensive thickening of the capsule and a growth of fibrous tissue between the tubules.

Microscopic diagnosis—Broncho-pneumonia; endothelial hyperplasia in spleen and retroperitoneal hemolymph node. Albuminous and fatty degeneration of liver. Slight albuminous degeneration of kidney. Atrophied thymus. Cloudy swelling of heart muscle. Chronic orchitis. Chronic periorchitis.

Explanation of illustration—The larger drawing shows the parietal peritoneum becoming continuous with the peritoneum of the appendix at the point where the appendix entered the inguinal canal and the band of fibrous tissue uniting the tip of the appendix with the tunica vaginalis. The smaller drawing is from a section through the tunica vaginalis showing the thickening of the parietal portion and the relation of the adhesion to the tunica vaginalis and the head of the epididymis.

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Clinical and Pathological Notes

Two cases of Syphilis. *By* FREDERICK J. RESSEGUIE, M. D.

Read before the Saratoga Springs Medical Society, April 29, 1904.

It seems incredible that physicians of this age could treat syphilis without recognizing its most prominent and typical symptoms; yet, in one of the cases I am about to report, such apparently was the case, and in the other, while the patient was informed that "he might have pox," he was not instructed, even in a general way, as to the proper means of caring for himself or protecting his family or friends from infection. While in one case there might possibly be some excuse for not making a proper diagnosis, in the other, the diagnosis having been made, there could be no possible excuse, except negligence or disinterestedness, for not giving minute instructions for perhaps the most important part of the treatment, namely, the protection of the innocent.

Mr. W., aged 28, single, clerk by occupation, consulted me February 25th, 1904, for a very severe sore throat, which he stated he had had for ten weeks; he had been treated for this continuously but had not improved. He is temperate in his habits. He gave a history of having a sore, which was first noticed September, 1903, on the left side of penis, on corona, where a slightly indurated scar presents. He had several "bullet" buboes in each groin. He has had but little, if any, eruption, although told by his physician to look out for it. He stated he had taken mercury, but with no effect. An examination of the throat revealed an hypertrophied right tonsil, covered with a greyish membrane with a foul odor; edges congested, and marked destruction of tissues at junction of tonsil with pillars of fauces above. Several holes, the size of a small pea, presented on the surface of the tonsil; the left side was in similar condition but much less severe. He had, also, several mucous patches along the pillars of the fauces and pharynx, and one on the left side of the tonsil. There was no nasal involvement. Treatment consisted in thorough cleansing of the throat and the local application of pure carbolic acid. Inunctions of mercury, and K I, grains fifteen, p.c., with orders to increase a drop daily, were prescribed, and smoking, and all irritating foods and condiments interdicted. The throat condition was treated locally every other day. March 1st, marked symptoms of iodism were present and K I was reduced to grains fifteen, p. c. The patient continued to improve and we were obliged to discontinue the inunctions on March 9th, owing to the development of "sore teeth." At his visit on March 15th, the throat was practically clear and the patient could eat solid food for the first time in two months; K I was stopped, and protoiodide begun with directions as to the proper dose carefully given.

This patient had not been told of his condition, had not been directed in any way whatsoever, as to means for protecting other members of his own family, and had not the slightest idea that such an infection might occur.

The other case is that of Mr. B., aged 33, and a motorman by occupation. He consulted me April 2d, 1904, complaining of severe pains in all his joints, which had been so severe as to compel him to give up his work for a month past, also of a throat trouble, which had been so severe as to render eating almost impossible, and which, he stated, had been practically unchanged by six weeks' steady treatment. On questioning, patient admitted that he had two soft chancres, which appeared January 20th. An examination of the penis revealed a scar on foreskin, at the junction with corona, superior surface, somewhat indurated; also a deep excavation on the right side of the glans penis, one-fourth inch deep, and one-half inch in longest diameter, edges irregular, slightly overlapping. This sore was also entirely healed, except a small spot of granulation at the bottom. There were several "bullet" buboes, and a slight papular eruption over lower abdomen and back; also, a few reddened elevated patches of skin on both legs about the knees and ankles, which measured one-half inch in diameter and which, he stated, were very sensitive and painful; there were two broken-down pustules on the scalp, the size of a split pea; the throat presented seven mucous patches, distributed along the posterior pillar of the fauces and tonsils, varying in size from one-half by one-fourth inch, to the smallest, which is about the size of a bean. This patient had taken no solid food in nearly five weeks, and said he has lost twenty-eight pounds in weight. This case appeared not to have been diagnosed at all; or, in case it was properly diagnosed, no appropriate line of treatment was carried out. This patient, who is married, had not been told of his condition, and the result of such negligence is too apparent to be dwelt upon by me at this time. Suffice it to say, he is now sleeping alone, has his own soap and towels, knows the danger of infecting others through the medium of eating and drinking utensils, and takes every care and precaution in carrying out all details. The treatment employed in this case was essentially the same as in Case One, and the improvement has been quite as rapid and marked.

Correspondence

VIENNA LETTER

VIENNA, *June 7, 1904.*

To the ANNALS:

The position of Privat Docents in the medical universities of Germany and Austria is not easily acquired. American physicians, as a rule, do not understand the significance of this appointment. The method of choosing the Privat Docents differs in minor points in the various universities, but the procedure followed in Munich is typical of all. A physician desiring to become connected with the teaching staff of the university makes a formal application to the professor in charge of the department of medicine in which he is particularly interested. In this application he states the clinical material at his disposal for teaching, as well as his personal qualifications and experience. If the professor decides favorably on this application he so informs the doctor. This is the first step. The applicant now sets at work to prepare an original thesis on some subject pertaining to his specialty. This completes the second stage in the development of his ambitions. The thesis is submitted to the professor, and if it meets with his approval the applicant has to have it printed and distributed among the Faculty. The third step is rather expensive, as the applicant must pay the printer's bill. The fourth and last stage in his making is his formal appearance before the Faculty and invited guests for an examination. Questions can be asked by any member of the Faculty on matters pertaining to the thesis or his specialty. Only by an unanimous vote of the Faculty is he appointed Privat Docent. This is a stepping-stone to the loftier heights of ausserordentliche Professor. Privat Docent is hardly analogous to our Instructor. He gives university courses just the same as the professors. In this country of titles and title-loving people he should always be addressed as " Herr Docent," as his position is one of no little honor.

An Anglo-American medical association has recently been organized in Vienna on similar lines to the one in Berlin. In former years places in the best courses, which are all limited in number, were given to personal friends of some member or were left as legacies to men from the same college. This was most unfair and unjust to the men who had been waiting in Vienna for several months for an opportunity to take some such course. The medical association has remedied this evil and now every man must register in person for any course and wait his turn for a vacancy. Meetings are held every second week, which are addressed by some member of the Faculty. At present there are nearly eighty members. A register is kept at the Wiener Café, opposite the entrance to the Allgemeines Krankenhaus, and a special bulletin has been placed (with K. & K. permission) near the entrance of the hospital. The officers of the society are very glad to meet the new-comers and to assist them in the selection of courses. There are good courses and mighty poor courses, and for both you pay the same. The assistants have the privilege to use the hospital material for their private courses, and the right way to profit from this material depends not alone upon the teacher, but upon the man himself. To get the most out of post-graduate work it is a mistake to take too many courses. The ambition of most Americans seems to be to take six or eight courses a day. It is absolutely impossible to assimilate this amount of work. If a man takes two courses a day, studies his cases thoroughly, and afterwards reads them up, he will learn much more and have a thorough knowledge of certain cases which he will always remember. Many men come over for six or eight weeks in Vienna with no, or at best only a meagre, knowledge of the language, take enough courses to keep them busy all day, and return to America full-fledged specialists. It is little wonder, after seeing the way many of our countrymen act over here, that we are valued not for our scientific attainments, but for our pecuniary benefits. In talking with a number of men who have studied both in Berlin and Vienna I find a striking unanimity of opinion regarding the medical advantages of Vienna, but—" comparisons are odious."

Professor Escherich has devised a new method for the radical cure of infantile umbilical hernia. This consists of injecting melted paraffin into the peritoneum under the umbilical ring and thereby forming a pelotte which fills up the ring and prevents the escape of the hernia. In other words, these infants are furnished with a genuine and serviceable " belly button." The success depends on a strict aseptic technique. The melted paraffin is drawn into a metal syringe and a few drops forced under the abdominal ring. At the same time an assistant cools the surface with an ethyl chloride spray. The operation takes less than a minute. A tight bandage is then placed around the abdomen and nothing more is done for a week, when the bandage is again applied. Over one hundred such injections have been made without a single bad result. I had an opportunity of seeing an autopsy on a child who had received this treatment several months before and who died from tubercular meningitis. The paraffin was imbedded in the tissue and formed a movable button which perfectly closed the opening in the ring.

Few Americans who study over here are aware of the existence of Dr. Hennings and his studio on the third floor of the Administration building of the Allgemeines Krankenhaus. Dr. Hennings' work consists in making wax models (moulage) of interesting stain and other lesions, and also in painting charts and plates for the various clinics for teaching purposes. He receives a salary from the hospital and is permitted to do private work for physicians as well. His studio is an interesting place to visit as it is filled with horrible but fascinating reproductions of medical curiosities. Dr. Hennings is an artist and takes great pride in his work.

The success of serum therapy in both curing and preventing diphtheria and tetanus led to its employment in many distinctively bacterial diseases. The results have not always been entirely satisfactory. The latest attempts have been made in scarlet fever. This is one of the most dreaded diseases of early childhood, and while the specific cause has not been discovered, yet the most constant bacteriological findings are streptococci. Dr. Moser, the first assistant in Professor Escherich's clinic, who has just been appointed Privat Docent, began his experiments three years ago to produce an antistreptococcus serum from the streptococci found in the heart blood of scarlet fever cases. These streptococci are injected directly into the horses, and it takes about eight months to produce the antitoxic serum. The results in the scarlet fever wards of the Annakinderspital, the Wilhelmina Kinderspital and Bokai's clinic in Buda Pest are just as remarkable and striking as are seen in diphtheria after the use of the diphthera antitoxin. The serum is only used in the very severe and lethal cases, and in nearly every case the temperature falls to normal within eight hours after its use and there is rapid improvement of all the symptoms. It is little short of marvellous to see a very severe case with a temperature of over 104° receive the serum and within eight hours have a normal temperature. Two hundred cubic centimetres of the serum are injected, which seems a tremendous dose, but it is well borne by the children and is not very painful. A secondary serum exanthem and fever occur in about three-fourths of the cases, but it is not at all serious. The scarlet fever mortality in the Annakinderspital has been reduced one-half since the use of the Moser serum. Before 1900 the mortality ranged from twelve to twenty per cent., since that date the mortality ranged from 6.3 to 8.5 per cent.

The Wilhelmina Hospital is the largest, most elaborate and most expensive children's hospital in the world. It is situated far from the center of Vienna on ground purchased several years ago with the idea of erecting the new Allgemeines Hospital there. When this scheme fell through the Kaiser built the present Children's Hospital and gave it to the city. The hospital is composed of over forty separate buildings. The division for infectious diseases contains twenty-one separate pavilions and none are less than one hundred feet apart. These pavilions vary in size. The larger ones contain a room for a physician, a well-equipped laboratory, an operation room, two separate isolation rooms, a nurses' room, a twelve-bed ward and a solarium. All the walls are wainscoted with white glazed tiles and the entire construction and equipment show a princely disregard for expense. This hospital must be seen to be appreciated. Theoretically it is magnificent, but practically it is a failure. The architect designed it without the aid or advice of a physician and the result was inevitable. The buildings are so far apart it takes a long time for a physician to respond to an emergency call. It takes the attending physician about four hours to make his daily visit, and in doing so he has to walk over a mile out of doors. The disadvantages and discomforts in winter and on rainy days can be imagined. The hospital is so far out of the city it is impossible to get enough assistant physicians. The danger of conveying infection from one pavilion to another is not avoided by separating the buildings. Nurses will not remain in one small pavilion all day and are sure to visit the neighboring buildings. The physicians rarely change their gowns going from one pavilion to another, and in making the rounds of nineteen pavilions the other day we only changed our gowns once. It is a striking commentary that a very large number of cases of mixed exanthem (measles and scarlet fever) have been observed in this alleged model infectious disease hospital.

HENRY L. K. SHAW.

Editorial

> Physic, for the most part, is nothing else but the substitute of exercise or temperance. Medicines are indeed absolutely necessary in acute distempers, that cannot wait the slow operation of these two great instruments of health; but did men live in a habitual course of exercise and temperance, there would be but little occasion for them. Accordingly, we find that those parts of the world are the most healthy where they subsist by the chase; and that men lived longest when their lives were employed in hunting, and when they had little food beside what they caught.
>
> JOSEPH ADDISON.
>
> *The Spectator.*

Dispensaries for Tuberculosis

The announcement recently made of the establishment of a special dispensary for tuberculosis at the Johns Hopkins Hospital, followed in a few days by the proposal of a similar department at the Hospital of the Western Reserve University, directs attention to one method of warfare against this disease which has not hitherto been prominent. Cases of tuberculosis have been treated in general medical dispensaries, and in many instances undoubtedly successfully. In event of failure, the defects of dispensary out-patient work are accepted, as in failure to control other diseases, where success depends upon discipline of the patient, and discipline is not to be had.

The specialization of the disease at once emphasizes the importance which it assumes and assists in bringing to bear upon its management all therapeutic measures. In a general medical dispensary cases of tuberculosis receive their share of attention, with others, whereas, in a special department, no step in the aggressive campaign can be omitted unless the department falls shamefully short of its purposes. Dr. Edward O. Otis emphasizes these distinctions in a contribution on the subject to the current issue of *Charities* (July 9). Dr. Otis attributes the first dispensary exclusively for tuberculosis to Calmette, of Lille, France, in 1900. The duty of the institutions is recapitulated by the French as threefold: prophylactic, therapeutic and social. The prophylactic and therapeutic measures consist of direct management of the patient, and the social duty of the dispensary consists in personal investigation of the patient and his home, and, when necessary, supplying material wants. The question of house visitation is a large one, and brings into consideration the availability of the district or visiting nurse.

In conclusion Dr. Otis formulates the objects of a dispensary for tuberculosis as follows:

(1) As complete an investigation of the patient as possible, including history, physical and bacteriological examination, and when the diagnosis is in doubt, the tuberculin test and an X-ray examination; (2) investigation of the patient and his surroundings at his home, including the hygienic condition of his domicile; (3) instruction both of the patient and his household in personal and domiciliary hygiene, and the safe disposal of the sputum; (4) the free supply to poor patients of pocket and house spittoons; (5) securing entrance into sanatoria for curable cases, and into consumptives' hospitals for incurable ones when they cannot be properly treated at home; or, when neither is possible, to treat the patient at his home as well as the conditions will permit; (6) aiding poor patients to obtain suitable food and other articles necessary for their proper care; (7) affording opportunity to physicians to send their poor patients for diagnosis when desired as well as advice and assistance in treatment; (8) the examination and oversight of patients who have returned from sanatoria; (9) opportunity for the scientific investigation and study of tuberculosis and various methods of treatment; (10) clinical instruction to students and physicians in the examination of tuberculous patients.

Scientific Review

THE RELATION OF PROTOZOA TO DISEASE

The numerous investigations concerning protozoa, made during the past few years, indicate that these unicellular animal organisms are destined to take a prominent place in the etiology of disease. Indeed, attempts have already been made to explain nearly all important infectious diseases of unknown etiology as due to some member of this group of organisms. This is due largely to the fact that failure to demonstrate vegetable micro-organisms in connection with these diseases by bacteriological methods leads to the conclusion that the causative agent must be either an ultramicroscopic bacterium or an animal parasite. The direct study of the former group is impossible owing to the limits of the present optical apparatus, and the natural tendency to study protozoa has grown apace and has increased to a great extent the literature of the subject. Among the diseases to which protozoa have been recently ascribed, as the result of purely morphological studies, are smallpox, scarlet fever, yellow fever, hydrophobia and "oriental ulcer." The bodies found have been studied only as to their morphology, for isolation and study by culture and inoculation cannot from the nature of things be carried out. Moreover these bodies occur within the tissue cells or in close relation to cells and cannot be studied in an isolated condition as can the various haematozoa. Thus the possibility of artifacts and degeneration cannot be easily excluded.

The very convincing preliminary communication of Councilman and his associates concerning smallpox and the unsuccessful attempt to associate sporozoa with yellow fever have already been reviewed in these columns. The recent observations of Mallory concerning scarlet fever and of Wright upon "Alleppo boil" appear to offer conclusive evidence of the protozoic character of these infections.

Scarlet Fever

F. B. Mallory (Scarlet fever: Protozoon-like Bodies Found in Four Cases, *Journal of Medical Research*, 1904, X, 483) describes certain peculiar bodies found in the protoplasm of the epithelial cells of the epidermis and between these cells, also free in the lymph vessels and spaces of the corium just beneath the epidermis. The majority of these bodies vary in size from a little less than two to six or seven microns in diameter. They present a definite morphology with a series of changes in form which suggests that they are the various developmental stages of a protozoon. For the purpose of description these bodies may be divided into two groups. The first group includes round, oval, elongated or lobulated bodies which stain delicately but sharply with methylene blue. They vary in size from two to seven microns, though occasionally some from ten to twelve microns in diameter may be seen, and are composed of a close meshed finely granular reticulum. Occasionally the reticulum is coarsely meshed. Sometimes one or more deeply staining granules occur in the bodies of the organisms, and not unusually one or more small but distinct vacuoles. Between the cells of the epidermis they are often elongated and form distinct rows extending out from the corium. When in the epithelial cells, they lie in vacuoles in the protoplasm and cause indentation of the nucleus. In the corium they are found close to the epidermis in the most superficial lymph vessels and spaces. The elongated and lobulated forms strongly suggest fixation while in amoeboid motion.

The bodies of the second group present a striking and significant feature in that they have a radiate structure. They are found both in vacuoles in the protoplasm of epithelial cells and free in the lymph spaces. They contain a central round body about which are grouped on optical section, ten to twelve narrow segments which in some cases are united laterally but in others are sharply separated from each other. The individual segments resemble the small bodies described above. In some instances these bodies appear as small free bodies between the cells and suggests the possibility of segmentation with final separation of the individual elements. This segmenting form resembles closely the rosettes of the *plasmodium malariae* and the writer suggests that this segmentation is analogous to the asexual development of the malaria parasite.

These bodies have been found only in the skin and the tongue, although various organs, the blood and discharges from several mucous membranes were examined. Mallory proposes the name *cylaster scarlatinalis*, but does not attempt to classify the organism.

The writer concludes with the statement that while personally he believes these bodies to be protozoa and to have an etiological relation to scarlet fever he does not claim that such a relation has been proved.

Tropical Ulcer

J. H. Wright (Protozoa in a Case of Tropical Ulcer ["Delhi Sore"], *Journal of Medical Research*, 1903, X, 472), describes the occurrence of certain protozoan organisms in a case of "Oriental boil." This disease, peculiar to the East, is seen in this country but rarely. It consists of single and multiple focal lesions of the skin characterized by the formation of elevated, indurated areas which ulcerate and eventually cicatrize. They resemble somewhat certain forms of cutaneous tuberculosis and syphilis. Histologically the lesions consist in infiltration of the corium and subcutaneous tissues with hypertrophy, atrophy and disappearance of the epidermis. The affection lasts for months and years and is endemic in tropical and subtropical countries.

Much has been written concerning the relation of various fungi, bacteria and protozoa to the lesion, but these observations have not been conclusive. Wright's material was obtained from the cheek of a child born in Armenia. In smears and sections were found peculiar bodies which when colored by Wright's modification of Romanowsky's blood stain, showed the following characteristics: small round sharply defined bodies two to four micromillimeters in diameter with an unstained center and a pale blue periphery. In each body appears a larger and smaller lilac colored mass, the larger mass being about one-quarter to one-third the size of the entire body, of variable shape and always in the periphery. The smaller mass is round or rod shape and takes a deeper stain than the larger mass. These bodies are present in very large numbers and in their arrangement often suggest an occurrence within cells.

The writer considers these bodies to be protozoa belonging probably to the microsporidia, but is unable to give a definite opinion as to their classification. Nothing was observed in which the possible developmental or reproductive cycle was suggested. The name proposed for this organism is *Helocosoma Tropicum.*

Inoculation of rabbits yielded no results. Attempts to bring about multiplication were also unsuccessful.

HYDROPHOBIA

Negri (*Zeitschrift für Hygiene*, 1903, XLIV., 507), an assistant to Golgi, describes peculiar bodies found in the protoplasm of the nerve cells of various portions of the cerebrum and cerebellum. He has found them in one case of human rabies and frequently in the experimental lesion of rabbits and in rabic dogs. The bodies are of irregular form and size and contain many smaller bodies which, according to Negri, represent a stage of development of the supposed organism. The bodies are found in the cells twelve to fourteen days after inoculation. Despite his positive claim that these bodies are protozoa and the cause of hydrophobia, the incomplete nature of their study and the great possibility of similar appearance being produced by artifacts or by degenerative changes, detracts largely from the probability that these observations will be confirmed.

Aside from observations such as the above based entirely upon morphology we have others, as the "spotted fever" of the Rocky Mountains, and the various forms of trypanosomiasis in which the living moving organisms may be found in the blood, and inoculation experiments successfully made. The study of such protozoic diseases has been largely stimulated by our increased knowledge, gained from malaria and yellow fever studies, of the rôle of insects in transmitting pathogenic micro-organisms. The advantage of the application of such methods is shown by a recent study of dengue.

Graham, H. (*Journal of Tropical Medicine*, July 1, 1903, Reference in *Journal of the American Medical Association*, July 25, 1903), working in Syria, as the result of his investigations of dengue concludes that it is due to a protozoon conveyed and inoculated by the mosquito. He has studied the development of the parasite both in the mosquito and in the blood of persons suffering from the disease. Experiments with mosquitoes, similar to those of Reed and his associates in connection with yellow fever, were carried out with fairly favorable results. The *culex fatigans* appears to be the mosquito chiefly implicated, though the *Stegomyia fasciata*, of yellow fever fame, was not completely excluded. Suitable individuals inoculated with an emulsion of the salivary glands of this species develop a typical severe attack of dengue, while the "dengue parasites" were found in their blood. These results seem very plausible, and whether they are confirmed or not, represent a very desirable method of investigation.

Pyroplasmosis Hominis

The investigation by Wilson and Chowning of the disease known as "spotted fever" or "tick fever" of the Rocky Mountains represents one of the most important, complete and illuminating studies by American workers. It has unusual importance, from the point of view of comparative pathology, because of its relation on the one hand to the malaria of man and on the other to the malaria of cattle ("Texas fever").

In 1901 (*Journal of the American Medical Association*, 1902, XXXIX., 131) these writers described the disease in detail and announced the discovery in the blood of a protozoan organism which they have since named *pyroplasma hominis.* Contributions to the subject have also been made by Wesbrook (Report of the Minnesota State Board of Health, 1901-02), Cobb (U. S. Public Health and Marine Hospital Service Reports, 1902) and J. F. Anderson (*American Medicine*, September 26, 1903; Bulletin No. 14, Reports of the U. S. Public Health and Marine Hospital Service).

The present report (Studies in Pyroplasmosis Hominis, *Journal of Infectious Diseases*, 1904, I, 31) is an attempt to give a conclusive summary of all work done upon this disease. The writers suggest as a proper name for the disease pyroplasmosis hominis, since the disease is the first described infection of man by a pyroplasma and also because the term "spotted fever" is already applied to several other diseases of man. The term "tick fever" is likewise objectionable because it has been used as a synonym for "Texas fever" or the malaria of cattle. The disease is particularly confined to the eastern foothills of the Bitter Root Mountains of Montana, an area four to ten miles wide and fifty miles long, and in Idaho along the southern foothills of the Boise Mountains. Isolated cases have also been discovered in Nevada and Wyoming. The disease occurs chiefly in the spring, from March until July, being most prevalent from the middle of May to the middle of June. The previous condition of the patient, sex and age bears no relation to infection except such as might be explained by exposure from occupation. The disease follows the bite of a tick, and the patient always gives a history of soreness about the tick bites with pains radiating from them. In from two to seven days after the bite the initial chill appears. The chill is usually severe at the beginning of the attack and recurs at irregular intervals with decreasing severity, and is accompanied by pain in the bones, muscles and joints. Other symptoms are headache, constipation and considerable restlessness. The fever, resembling closely that of typhoid, reaches 103 degrees to

104 degrees the second day and after five to seven days may rise to 107 degrees. The recovery is usually by lysis, much as in typhoid, which begins about the end of the second week and reaches normal two to four weeks later. The eruption appears from the second to the fifth day, first about the wrists, ankles and back, then extending over the entire body, the abdomen being involved last. The macules are first rose colored and consist of circular spots varying in size from one to five millimeters in diameter, are not elevated and disappear on pressure. Later they assume a dark bluish or purplish color, are permanent and frequently confluent. Desquamation begins about the third week and is slight except over the most affected areas. Some cases are complicated by gangrene. Moderate anemia exists.

The mortality of the severe cases is seventy to eighty per cent.; mild cases usually recover. The morbid anatomy presents no characteristic points except enlargement of the spleen, and parenchymatous degeneration of heartmuscle, liver and kidney.

The cause of the disease is a haemocytozoan closely resembling *pyroplasma bigeminum* (Smith and Kilbourne) of the malaria of cattle, or "Texas fever," as it is better known. They may be found in the plasma of the blood or in preparations stained by Laveran's or by Nocard's method. The smallest forms (phase 1) appear as small hyalin masses and when found free in the blood plasma may be mistaken for diplococci. When in the cells they are ovoid in form and from one to two μ in length by one μ in thickness. Two parasites are usually present in one cell although as many as sixteen have been found. These small forms have occasionally been seen to change their position in the cell although the presence of pseudopodia or other evidence of amoeboid action has not been observed. The larger forms, (phase 2) however, present an active amoeboid movement. It measures two to three μ in thickness and three to five μ in length, and is solitary in the cell.

The organism has been inoculated into rabbits and in one animal persisted in the blood for sixteen months. The animals which die of the infection show swelling of the spleen and hemorrhages beneath the skin.

There is no evidence that the disease is transferred directly from man to man or by means of the respiratory, digestive or genito-urinary system. In all cases the disease is associated with tick bites, and all evidence indicates that the infection is transmitted in this way. While the writers have not demonstrated the presence of the pyroplasma in the tick they have frequently found in the spermophile (*spermophilus columbianus*), a common rodent of the Rocky Mountains, a haemocytozoan indistinguishable from that found in "spotted fever." The spermophile is said to harbor great numbers of tick. The parasites have been found in the blood in twenty per cent. of the spermophiles and have not been found in other animals examined. They also have not been found in uninfected districts. The writers therefore believe it possible for this rodent to be the temporary host of the pyroplasma and that the transmission to man takes place by means of the tick.

An attempt to explain the transmission of another disease by ticks is made by Christy (Thompson Yates and Johnston Laboratories Report, 1903 V., 187) of the Liverpool School of Tropical Medicine. He found in the Uganda Protectorate, a tick (*argas moubata*) known by the natives as "bibo." The bite of the tick was followed by definite symptoms—vomiting, purging, headache, pain in the abdomen and fever. Its distribution agrees with that of *filaria perstans* which is frequently found in the blood of the natives, and he believes it to be the intermediate host of this parasite.

TRYPANOSOMIASIS

The rapid increase in the literature of trypanosomiasis, the observation of the occurrence of the disease in man, and the artificial cultivation of two forms of trypanosomes indicates the great interest recently awakened concerning this flagellated protozoon.

The disease is essentially one of horses and cattle, the nagana of Central Africa (the " tsetse disease " of Livingston, the explorer), the surra of India, the dourine of Algeria, and "mal de Caderas" of South America. The best known form of the organism is the *Trypanosoma Brucei* found by Bruce in nagana. There is some difference of opinion as to whether all forms of the parasite in cattle and horses are identical. It is generally believed that the disease is transmitted by insects, nagana being transmitted by the tsetse fly, but there is very strong evidence that coitus furnishes the means of transmission of the dourine of cattle. The characteristic lesions are anemia and enlargement of the spleen and lymph nodes. The trypanosome of rats is known as the *Tr. Lewisi.*

Reported cases of infection of man are not numerous. The first was reported by Manson (1902) and followed an insect bite of the foot. Other probable cases are those of Leishman, Donavan, Dutton and that recently reported by F. Marchand and Ledingham (*Lancet*, Jan. 16, 1904). More striking results (Reference in the *Journal of the American Medical Association*, October 10, p. 918, 1903; Dec. 5, p. 1421, 1903), on the other hand have been obtained by the commission appointed by the Royal Society to investigate the "sleeping sickness" of Uganda. They have found that the disease is caused by a trypanosome which enters the blood stream and thence localizes in the cerebro-spinal fluid. The transmission from sick to healthy is by a species of tsetse fly. Castellani, of the first commission, found the parasite in five cases in the cerebro-spinal fluid and in one in the blood. In the investigations of the second commission, under Bruce, it was found in both cerebro-spinal fluid and blood in the majority of the cases. Experiments demonstrated the possibility of the transmission of the disease to monkeys by inoculation of the blood or cerebro-spinal fluid of the sick, and by flies (tsetse fly) which had fed on the blood of the sick. It was further found that this fly is confined to the area corresponding absolutely to the distribution of sleeping sickness.

Finally we have the report of the cultivation of two forms of trypanosoma by American investigators. At the last meeting of the American Medical Association, Novy and Ward presented before the section on pathology and physiology, the results of their work on the cultivation of the rat trypanosome (*Trypanosoma Lewisi*). This was the first time that a pathogenic protozoon had been successfully cultivated and its relation to the disease demonstrated by inoculation of pure cultures, and was therefore a distinct advance in our knowledge of the animal parasites.

The same writers, later, (*Journal of the American Medical Association*, November 21, 1903), made a preliminary report of the successful cultivation of the *trypanosoma Brucei*, the cause of nagana or tsetse fly disease of South Africa. The culture medium employed for rat trypanosomes was ordinary nutrient agar containing variable amounts of defibrinated rabbit's blood, in the water of condensation of which the organisms grew readily and luxuriantly. The nagana trypanosoma does not take readily to this medium, and cultures were obtained with great difficulty. When, however, an initial growth was once obtained, the subsequent cultivation was less difficult. Cultures were made from fifty animals with forty-six failures. From each of the remainder cultures were obtained, one of which has been carried through seven generations, covering at the time of publication, a period of seventy-seven days. The growth may be obtained at room temperature or at twenty-five degrees centigrade; at thirty-four degrees centigrade growth is possible but the culture loses its virulence and soon dies out. While the rat trypanosoma will grow in blood and agar in the proportion of one-half, one-fifth or even one-tenth, the nagana organism requires an amount of blood at least equal to the agar, a fact which may be utilized to separate the two trypanosoma in cases of mixed infection.

In a still more recent communication (*Journal of Infectious Diseases*, 1904, I., 1) the details of this investigation are given; and the writers prophesy that, eventually, laboratories concerned in the study of etiology will keep stock cultures of protozoa as well as of bacteria.

R. M. PEARCE.

FEBRUARY 15, 1904.

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, JUNE, 1904

Deaths

	1901	1902	1903	1904
Consumption	23	13	12	19
Typhoid Fever	3	2	0	2
Scarlet Fever	1	0	0	0

	1901	1902	1903	1904
Measles	0	0	2	0
Whooping-cough	0	0	2	0
Diphtheria and Croup	0	0	2	0
Grippe	0	0	2	0
Pneumonia	2	3	4	4
Broncho-pneumonia	3	4	3	2
Bright's disease	12	5	10	19
Apoplexy	12	8	5	5
Cancer	13	6	9	12
Accidents and Violence	8	6	7	8
Deaths under one year	14	13	17	10
Deaths at seventy and over	19	19	15	18
Total deaths	148	102	119	118
Death rate	17.99	12.40	14.47	14.34

Death rate less non-residents 12.77.

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	15	10	11	19
Albany Orphan Asylum	0	0	0	0
County House	2	5	4	4
Homeopathic Hospital	4	3	1	2
Hospital for Incurables	2	1	2	0
House of Shelter	0	1	0	0
Little Sisters of the Poor	0	0	0	1
Public Places	1	0	1	3
St. Francis de Sales Orphan Asylum	0	0	3	0
St. Margaret's House	4	0	2	0
St. Peter's Hospital	3	0	0	4
St. Vincent's Male Orphan Asylum	1	0	5	0

Marriages		107
Births		126
Births at term	109	
Premature births	4	
Still births	13	

WORK OF HEALTH PHYSICIANS

	1902	1903	1904
Assignments	66	72	68
Calls made	374	263	285

INSPECTIONS

In the Bureau of Markets and Milk there were forty-three markets inspected, twenty milk men, eleven inspections of the public market, one slaughter house inspection. Two markets were complained of, one notice was served, one milk license was issued, ten samples of milk were collected, twenty tests were made, of which eighteen were found above standard and two below standard. One case was referred to the State Commissioner of Agriculture.

DETAIL RESULTS OF TESTS

Tests.	Temperature.	Sp. Gravity.	Corrected Sp. Gravity at 60°	Fat.	Solids.
2	57°	1.034	1.0335	2.7	11.8
2	57	1.034	1.0335	4.4	13.8
2	62	1.031	1.033	4.0	13.3
2	62	1.031	1.0312	4.6	13.5
2	68	1.034	1.0352	3.2	12.8
2	67	1.032	1.033	4.	13.2
2	68	1.032	1.0331	3.	13.
2	79	1.030		3.2	12.2
2	79	1.029		2.4	11.
2	76	1.028		3.6	12.

In the Bureau of Plumbing, Drainage and Ventilation there were one hundred and eighty inspections, of which one hundred and twenty-five were of old buildings and fifty-five of new buildings, forty iron drains were inspected, thirty-four connections with street sewers, thirty-seven tile drains, one urinal, twenty-nine cesspools, forty-seven wash basins, forty-six sinks, forty-five bath tubs, twenty-six wash trays, three trap hoppers in yard, sixty-six tank closets. One hundred and eighty-four permits were issued, of which one hundred and three were for plumbing and thirty-one for building purposes. Twenty-two plans were submitted, of which eight were for old buildings and fourteen for new buildings. Eleven tests were made on complaint and ten water tests were made; twenty-seven houses were examined on complaint and forty-two re-examined. There was found one violation.

In the Bureau of Sanitation there were seventy-one complaints made, of which fourteen were of privies, eleven of closets, five of drains, nine of plumbing, six of water, four of filthy yards, one of filthy alleys, five of filthy premises, one of manure, one of stables, four of garbage, three of dumping, one of smoke, one of odors, five unclassified. There were ninety-three inspections, of which fifty-four were of a sanitary nature and thirty-nine of plumbing, also thirty-two re-inspections. Eight complaints were made without cause and twenty-one nuisances were found abated on re-inspection, forty-eight notices were served, one hearing was held and seven cases were brought to a hearing.

In the bureau of Mercantile Establishments there were one hundred and eighty-nine inspections and thirty-six re-inspections. Nineteen violations were found, seventy-nine closets were inspected, two defective closets were found, fifty-one copies of the law were delivered and twenty-eight certificates were issued to children.

Bureau of Contagious Diseases

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	2	4	2	3
Scarlet Fever	8	14	5	26
Diphtheria and Croup	27	22	11	7
Chickenpox	3	38	4	1
Measles	58	25	118	6
Consumption	1	1	1	1

Fumigations:
Houses.................... 27 Rooms.................... 83
Number of days quarantine for diphtheria:
Longest........ 14 Shortest....... 11 Average....... 12 3-4
Number of days quarantine for scarlet fever:
Longest........ 52 Shortest....... 10 Average....... 30 1-9

Antitoxin

Cases of diphtheria reported	7
Cases in which antitoxin was used	6
Cases in which antitoxin was not used	1

Bender Laboratory Report

Cultures for Diphtheria

	1901	1902	1903	1904
Initial positive	17	15	8	4
Initial negative	22	19	15	14
Release positive	13	25	9	1
Release negative	15	11	17	6
Failed	1	2	6	0
Total	68	72	55	25

Examination for Tuberculosis

Initial positive............. 1 Initial negative............ 1

It is gratifying to note that the death-rate of the city has again fallen. The death-rate less non-residents of 12.77 and the total death-rate of 14.34 proves that the city is again in excellent sanitary condition. Aside from the deaths from consumption there were two deaths only from the more common communicable diseases. These two deaths were from typhoid fever, and in both cases the diseases had been contracted outside of the city. There were no deaths from scarlet fever, measles or diphtheria. Consumption, as usual, heads the list of the communicable diseases. At this season of the year an increase is to be expected in the deaths of children, particularly so among those suffering from diarrhœal diseases. The fact that the deaths this year under one year of age is only ten in number in comparison with seventeen in 1903, thirteen in 1902 and fourteen in 1901 is very satisfactory.

The report of births is again greater than the number of deaths, and is in itself an indication of healthy sanitary conditions.

The health physician made 285 calls during the month of June.

Attention is called to the tests which have been made of milk during the month. Of the samples taken eighteen were found to be standard and two fell below the standard.

One hundred and eighty-nine inspections were made of mercantile establishments and thirty re-inspections were made. Among these inspections nineteen violations were found. Twenty-eight mercantile certificates were issued to children during the month.

In the Bureau of Contagious Diseases a less number of cases were reported this month than during any of the corresponding periods for the last four years; forty-five cases reported this year as against 141 a year ago, 104 in 1902, 109 in 1901.

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR JUNE, 1904.—Number of new cases, seventy. *Classification of cases:* Dispensary patients receiving home care, two; district cases reported by health physicians, three; charity cases reported by other physicians, thirty-four; patients of limited means, thirty-one; old cases still under treatment, twenty-seven; total number of patients under nursing care, ninety-seven. *Classification of diseases* (new cases): Medical, twelve; surgical, three; obstetrical, forty-six; mothers, twenty-four; infants, twenty-two; gynæcological, four; dental, two; eye and ear, one; removed to hospitals, three; died, three.

Special Obstetrical Department: Number of obstetricians in charge of cases, one; attending obstetricians, two; number of students in attendance, seven; cases, five; number of visits by head obstetrician and attending obstetricians, forty-nine; number of visits by medical students, thirty-six; number of visits by Guild nurses, one hundred forty-eight.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, seven hundred forty-nine; number of visits for supervision of convalescents, one hundred forty-nine; total for month, eight hundred ninety-eight. Four graduate and four assistant nurses on duty. Cases reported to Guild by the city physician, three health physicians and twenty-one other physicians.

THE MILK COMMITTEE OF THE MEDICAL SOCIETY OF THE COUNTY OF ALBANY report the following bacteriological examinations of Certified Milks during July: Mr. St. John's Gold Seal Dairy (Mr. F. H. Schroeder, 210 Washington avenue, agent), bacteriological count of Agar plates, 600 per cubic centimeter; Mr. Stevens' Normanskill Farm Dairy (depot, corner State and Lark streets), bacteriological count of Agar plates, 12,000 per cubic centimeter For the Committee, R. M. PEARCE, M. D.

New York State Hospital for Incipient Tuberculosis.—The New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis, located at Ray Brook, Essex county, N. Y., will receive patients now. The institution can be reached by the New York Central and Hudson River railroad and Delaware and Hudson railroad. If possible the patient should bring light and thick warm clothing.

The names and addresses of the examining physicians appointed in Albany are: Dr. Samuel B. Ward (in whose absence Dr. James F. Rooney substitutes) and Dr. George E. Gorham. Further information will be furnished by applying to John H. Pryor, M. D., superintendent.

The following extract from the organic law of this institution indicates the method for securing the admission of patients:

Chap. 416, Laws of 1900—An act to establish a State Hospital in some suitable location in the Adirondacks for the treatment of *incipient* pulmonary tuberculosis, and making an appropriation therefor.

§ 13. Free Patients.—The trustees of said hospital to be appointed under and pursuant to the provisions of this act, and their successors are hereby given power and authority to receive therein patients who have no ability to pay, but no person shall be admitted to the hospital who has not been a citizen of this State for at least one year preceding the date of application. Every person desiring free treatment in said hospital shall apply to the local authorities of his or her town, city or county having charge of the relief of the poor, who shall thereupon issue a written request to the superintendent of said hospital for the admission and treatment of such person. Such request shall state in writing whether the person is able to pay for his or her care and treatment while at the hospital, which request and statement shall be kept on file by the superintendent of the hospital. Such requests shall be filed by the superintendent in a book kept for that purpose in the order of their receipt by him. When said hospital is completed and ready for the treatment of patients, or whenever thereafter there are vacancies caused by death or removal, the superintendent shall thereupon issue a request to an examining physician, appointed as provided for in section twelve, in the same city or county, and if there be no such examining physician in said city or county then the nearest examining physician, for the examination by him of said patient. Upon the request of such superintendent said examining physician shall examine all persons applying for free admission and treatment in said institution, and determine whether such persons applying are suffering from incipient pulmonary tuberculosis. No person shall be admitted as a patient in said institution without the certificate of one of said examining physicians certifying that such applicant is suffering from incipient pulmonary tuberculosis. Admission to said hospital shall be made in the order in which the names of the applicants shall appear upon the application book, to be kept as above provided by the superintendent of said hospital, in so far as such applicants are subsequently certified by the said examining physician to be suffering from incipient pulmonary tuberculosis. Every person who is declared as herein provided to be unable to pay for his or her care or treatment shall be transported to and from the hospital at the expense of said local authorities.

§ 14. PRIVATE PATIENTS.—Applicants for admission to this institution who are able to pay for their care and treatment are not required to obtain a written request from the local authorities having charge of the relief of the poor, but shall apply in person to the superintendent, who shall enter the name of such applicant in the book to be kept by him for that purpose, as provided in section thirteen; and when there is room in said hospital for the admission of such applicant, without interfering with the preference in the selection of patients, which shall always be given to the indigent, such patients shall be admitted to the hospital upon the certificate of one of the examining physicians, which certificate shall be kept on file by the said superintendent.

§ 15. SUPPORT OF FREE PATIENTS.—At least once in each month the superintendent of the hospital shall furnish to the comptroller a list, countersigned by the treasurer of the hospital, of all the free patients in the hospital, together with sufficient facts to enable the comptroller to collect from the proper local official having charge of the relief of the poor such sums as may be owing to the State for the examination, care and treatment of the patients who have been received by the hospital and who are shown by the statement of such local official to be unable to pay for their care and treatment. The comptroller shall thereupon collect from the said local official the sums due for the care and treatment of each such patient at a rate not exceeding five dollars per week for each patient.

§ 16. SUPPORT OF PRIVATE PATIENTS.—The trustees shall have power and authority to fix the charges to be paid by patients who are able to pay for their care and treatment in said hospital or who have relatives bound by law to support them, who are able to pay therefor.

THE NORTHERN NEW YORK MEDICAL ASSOCIATION AND THE ST. LAWRENCE COUNTY MEDICAL SOCIETY.—It has been decided to hold the meeting of both societies on October 18, 1904, at Ogdensburg, N. Y., the Northern New York Medical Association holding session during the afternoon and the County Society during the evening of the same day. The afternoon session will be held at the St. Lawrence State Hospital, upon the invitation of the superintendent, Dr. R. H. Hutchings. The evening session will take place in the City Hall. Following the evening meeting a banquet will be held under charge of both societies. This arrangement will permit members of either society to attend both meetings. Dr. M. D. Briggs is president of the Northern New York Medical Association and Dr. E. M. Somers, of the St. Lawrence County Medical Society.

AN ATLAS OF BACTERIAL INFECTIONS IN MAN.—Announcement is made that if sufficient support can be secured it is intended to publish from the office of *The Journal of Medical Research* an Atlas of Bacterial Infections in Man. It will consist of one hundred plates—a few in color—with descriptive text. The reproductions will be ten by twelve inches, a large number of them with but one figure on a plate, printed on heavy paper and in the best manner. The volume will be furnished bound in half morocco, and copies will be numbered, for the edition will be limited. The price will be ten dollars ($10.00) delivered free in the United States and Canada. The authors will be Dr. H. C. Ernst, Professor of Bacteriology in the Harvard Medical School, and Dr. S. B. Wolbach, First Assistant Resident Pathologist to the Boston City Hospital. As the expense of the publication will be heavy, possible subscribers are desired to communicate with *The Journal of Medical Research,* 688 Boylston street, Boston, Mass.

PERSONAL.—Dr. WILLIS E. MERRIMAN, JR. (A. M. C., '02) is Assistant Physician at the New York State Hospital for Incipient Tuberculosis, Ray Brook, N. Y.

—Dr. CREIGHTON W. SKELTON (A. M. C., '98) is at 397 Friendship street, Providence, R. I.

—Dr. A. PARKER MUIR (A. M. C., '96) is secretary of the Albany Medical College Alumni Association of the City of New York, and not Dr. Charles Gartner, as published in the Transactions of the Association. Dr. Muir's address is 204 West 133d street, New York City.

—Dr. J. PARKER TALMADGE (A. M. C., '02), formerly of Nassau Hospital, Mineola, L. I., has accepted a position as assistant superintendent of the Long Island College Hospital, Brooklyn, N. Y. He entered upon his new duties July first.

IN MEMORIAM

JOHN H. DORN, M. D.

Dr. John H. Dorn died in London, Eng., Friday, June 17, 1904. He had been a sufferer from angina pectoris for several years, and it is supposed that an attack of that disease resulted in his death. Accompanied by a party of four of his wife's relatives, he sailed for Liverpool on June 4, arriving at London on Tuesday, expecting in a few days to go to Aix-les-Bains, France, to the baths, which he had been accustomed to take for several years for the benefit of his health. Dr. Dorn, who was the son of the late William and Hanna Harding Dorn, was born in Johnstown in 1842. He graduated from the Albany Medical College in 1865. Immediately after his graduation he opened an office in New York City, where he soon built up a lucrative practice and for twenty years held the position of surgeon to the police department. In 1871 he married Miss Margaret Johnson, a sister of Dr. W. L. Johnson, of Johnstown. She died in 1888. In 1897 he married Miss Sarah Louise Echert, of Cincinnati, Ohio, who at present is at the home of her brother at Cincinnati. His only immediate relatives are his widow and his sister, Mrs. Elizabeth Scofield, of Johnstown, N. Y.

DAVID J. FITZGERALD, M. D.

Dr David J. Fitzgerald, a leading physician of Warren county, N. Y., died at his home in Glens Falls, July 17, 1904, aged forty-six years. He was born in Ireland and came to this country early in life. He was graduated from the Fort Edward Collegiate Institute in 1876, and the Albany Medical College in 1884, and after a course in the New York Post

Graduate College began practice in Glens Falls in 1886. He leaves a widow and two young daughters, and also these brothers and sisters: Dr. John F. Fitzgerald, of the department of charities of Brooklyn; Edmund F. Fitzgerald, Thomas E. Fitzgerald and William G. Fitzgerald, of New York City, and Mrs. Helen Vosberg, of Richmond Hill, L. I.

Book Reviews

Röntgen Ray Diagnosis and Therapy. By CARL BECK, M. D. New York: D. Appleton & Company, 1904.

This is more particularly a clinical treatise of the subject. The author's ensemble of surgical cases with his Röntgen investigations thereof is the main feature of the book. A more appropriate title would be "My Röntgen Ray Diagnoses and Therapy," by Carl Beck: it will interest all who wish to use the same methods and to know some of the results of the author, but it is not written on a broad general basis. Intimate knowledge of the German literature is shown.

In the preface, standard authors of text-books on the Röntgen rays are mentioned, and the excellence of their already completed works recognized, therefore the author wisely confines himself to a brief enumeration of the essentials to obtain the best results by coil methods. The apparatus described and illustrated is mainly German, although equally good, if not better, apparatus is made not only in our own country, but in the author's own city. The information about exposures and development is insufficient; the statements of length of time required for development are too positive. This process cannot be accurately measured by minutes. The proper quality of X-rays and how to obtain them, the proper exposure of the plate and the proper development are the most important points in radiography, and all three should be thoroughly elucidated in a book on the subject.

In mentioning static machines, instruction in keeping the interior of the case dry is not given. This is the *sine qua non* of success for users of this form of apparatus. The methods of localization are inferior to those described by Albers, Schoenberg and Cole.

In Section II (Regional) under "Head," the superior technique for localizing foreign bodies in the eye-ball evolved by Sweet, of Philadelphia, is not mentioned, and the methods for making dental skiagraphs is inferior to that described by Price of Cleveland. No skiagraphs with the details of the base of the skull, such as sella turcica, and grooves for the middle meningeal arteries and blood vessels are shown, nor is the possibility of obtaining such details mentioned in the text. The outlines of the sella turcica and the frontal sinuses are changed in acromegaly. This fact is worthy of note.

The chapters on malformations, diseases of bone and joints, neoplasms, fractures, and the medico-legal aspects of Röntgen rays are the most valuable in the book and well worth reading.

In Chapter IX there are five skiagraphs purporting to show biliary calculi *in the gall passages,* the least convincing of these being obtained in cases in which subsequent operation proved the diagnosis correct. The author is to be congratulated for such diagnostic results but should accompany his statement that figure 79, page 124, represents "numerous biliary calculi in a much more distended gall-bladder," with indisputable proof.

In Section III the laudable position is taken of recommending irradiation only in cases where older, simpler, and less expensive methods have failed; and in the case of malignancy only post-operatively and in hopeless cases.

Many interesting cases in the author's experience are cited. It is to be regretted that more data regarding unsuccessful cases are not given so that the reader could arrive at some idea of prognosis under X-ray treatment. The methods of X-radiation have already been exhaustively described and favorable cases have been exploited in the press, medical and lay. What the profession actually needs to know is whether the X-rays have any well verified, authentic and permanent curative powers, and, if so, in what class of cases we can expect cures, how long the treatment will be, and other prognostic data.

There is an appended bibliography of thirteen pages, of which the author's own publications comprise twenty-four per cent. We would suggest that a more complete bibliography could have been copied from the appendix of the second edition of Gocht's *Lehrbuch Röntgenuntersuchung zum Gebrauch für Mediciner.* The omission of such writers as Scudder on "Fractures," Pusey and Caldwell on "Röntgen Diagnosis and Therapeutics," Phaler, Weigel, Boggs and Bevan is noticeable.

The book is well illustrated, well bound and well printed.

ARTHUR HOLDING.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Dr. CARL VON NOORDEN. Authorized American Edition Translated under the Direction of BOARDMAN REED, M. D. Part V. Concerning the Effects of Saline Waters (Kissingen, Homburg) on Metabolism. By Prof. CARL VON NOORDEN and Dr. CARL DAPPER. New York: E. B. Treat & Co., 1904.

This little volume takes up in about ninety pages various aspects of the effects of mineral waters containing sodium chloride upon metabolism. The work is in five sections dealing respectively with the influence of saline mineral waters on gastric secretion, the effect of saline mineral waters on the absorption of food, the influence of such waters on the metabolism of proteids, their influence on the excretion of uric acid, and on the use of fruit and certain other foods in the course of water cures.

As in his previous works on nephritis and obesity so also in this monograph the author overthrows certain beliefs long cherished by the profession. He shows that, contrary to general opinion, saline mineral waters produce an active and permanent increase in hydrochloric acid in gastric catarrh, and that in some cases of hyperacidity small doses of salines decrease the production of hydrochloric acid. He also shows that certain restrictions in diet generally imposed upon those taking water cures at saline springs are unnecessary, especially the prohibition of fats and of raw fruits, vinegar, salads, and food of a similar character. The use of saline waters does not interfere with the digestion and absorption of fats as is generally taught. His experiments also show that saline mineral waters do not interfere with the metabolism of proteids, and that they slightly increase the output of uric acid. This volume, like its predecessors in the same series, is well worthy of careful reading, especially by those interested in such diseases as gout, obesity, and the metabolic diseases in general. G. B.

Subjective Sensations of Sight and Sound, Abiotrophy and Other Lectures. By Sir William R. Gowers, M. D., F. R. C. P., F. R. S., Hon. Fellow R. Coll. Phys., Ireland; Member of the Soc. Medicins Russes of St. Petersburg and of the Royal Soc. of Science of Upsala, etc. Philadelphia: P. Blakistons' Son & Co., 1012 Walnut street. 1904.

A lesson well worth the reading is taught in these classical lectures of Sir William Gowers. He has taken certain so-called degenerative diseases for illustration of the truth that the end of life may occur first as a gradual decay of certain structures. This decay is too generally regarded as disease, when it should be recognized as indicating that the native and inherent energy has run its course. This is especially true of the lecture on Abiotrophy, in which are considered disseminated sclerosis and many forms of central degenerative atrophy of the nervous system. In the following lecture on Myopathy, discussed in the same way and to the same end, are idiopathic muscular atrophy and muscular dystrophy. It is well to recognize the pathological facts of these conditions, that treatment and management may be directed intelligently and that harmful experimentation or medication may be avoided. In the lecture on Syphilis of the Nervous System the prognosis is discussed at length and with some caution. "Whenever the nerve structures are damaged by specific processes we should be prepared for imperfect recovery, however successful our treatment of the primary process may be."

Other topics of lectures are Metallic Poisoning, Syphilitic Arterial Disease, Syringal Hæmorrhage into the Spinal Cord, Myasthenia and Ophthalmoplegia, The Use of Drugs, Subjective Visual Sensations and Subjective Sensations of Sound. All are written with the clarity characteristic of their author, and all show deep thought. The reader, particularly if interested in nervous diseases, will find many suggestions for speculation and for revision of theories upon these troublesome questions.

Current Medical Literature

SURGERY

Edited by A. Vander Veer, M. D.

Lombricoid Worms and Appendicitis. (*Lombrics et Appendice.*)
LeRoy des Barres. *Gazette des Hopitaux, No. 124, October, 1903.*

The writer calls attention to the fact that helminthiasis, and particularly lombricosis, are of very frequent occurrence in India and China. In more than a thousand cadavers which he has examined he has found that over half of them contained lombricoid worms. He calls especial attention to the fact that has already been frequently noted, that appendicitis is extremely rare in China. The examination of the appendix upon 200 cadavers during the past year showed that in only two instances was there any diseased condition of the appendix, and these were simply slight adhesions. In ten of these 200 cases the writer found a lombricoid worm in the lumen of the appendix. In six of the cases the worm was engaged by its cephalic extremity; in four cases by its caudal extremity. The exterior of these appendices did not present any peritoneal reaction. The appendix appeared simply somewhat more firm and resistant than normal. In seven of the cases the worm was still alive. In all of the cases except one, the mucous membrane of the appendix was macroscopically normal. In one case the mucosa was reddened, as was the case with the mucosa of the caecum, but the individual had died of cholera, which probably explained this condition.

The writer believes that the presence of a lombricoid worm does not cause appendicitis unless there should be added to it some bacteriological infection. He, furthermore, does not believe that these worms predispose to appendicitis. He raises the question as to whether or not the worms may have found their way into the appendix after the death of the individual and admits that in some instances this may be possible. He, however, believes that the intermittent pain in the caecal region which is frequently noted in cases of helminthiasis may be and very probably is due to the irritation of the appendix by the worms; but that these pains are not accompanied by any peritoneal irritation and disappear as rapidly as they appear. He calls attention to the fact that lombricoid worms have been found in an abscess following a perforation of the appendix, which he believes is positive proof that they not infrequently gain access to the lumen of the appendix during life.

The Prophylaxis of Post-operative Cystitis. (Die Prophylaxe der post-operativen Cystitis.)

K. Baisch. *Münchener medizinische Wochenschrift, No. 38, 1903.*

All operations upon the female genitalia are apt to be followed by an inability to pass urine, and the use of the catheter in many of these cases is followed by severe cystitis, which often leads to an ascending affection of the kidneys and frequently death. This has been especially true of obstetrical practice and many of the obstetricians have endeavored to seek other means of producing spontaneous discharge of the urine. Bumm has definitely shown that it is not alone the catheter or the bacteria which may be introduced along with it which is responsible for the inflammation, but that there must also be a certain predisposition on the part of the bladder, which is usually found in injuries received either during the confinement or during operation. This is especially true of operations about the vagina, in which so often there is more or less traumatism of the bladder. Bacteria rarely produce any disturbance when introduced into an absolutely normal bladder.

Still another factor which favors the development of cystitis is a retention of urine, especially in cases of prolapsus of the uterus or of marked laceration of the perineum, in which conditions it is frequently impossible to completely empty the bladder. Post-operative cystitis, however, rarely develops in those cases in which the use of the catheter is not necessary, and for that reason every possible attempt should be made to avoid its use. If necessary, the most careful aseptic technique should be employed. Furthermore, in all operations in the vicinity of the bladder every possible effort should be made to restrict the amount of traumatism. It is a well-known fact that strong disinfectants, and particularly hygroscopic solutions (as, for instance, alcohol) exert a marked stimulation upon the bladder which leads to a frequent expulsion of the urine. Based upon these facts, the writer has made use of glycerine in the attempt to induce spontaneous emptying of the bladder. The method is to inject twenty cubic centimetres of a two per cent. sterilized boro-glycerine solution through a catheter on the evening after operation. The action is usually prompt; in from five to ten minutes the patient will spontaneously empty the bladder without any unpleasant after-effects. The urine is as a rule subsequently passed without any difficulty and if there should be difficulty the injections are repeated.

In certain cases the use of the catheter appears to be absolutely necessary. It is advisable to wash out the bladder after it is emptied with a one to one thousand solution of silver nitrate, or in some instances with a three per cent. solution of boracic acid. In this way it is usually possible to prevent the development of a cystitis.

In conclusion the writer urges, so far as possible, the avoidance of the catheter in all instances; the use of boro-glycerine where it is impossible to spontaneously empty the bladder; and in cases where it is necessary to use the catheter, use should be made of disinfectant solutions for the irrigation of the bladder.

The Treatment of Dermoid Cysts of the Anterior Mediastinum. (Zur Therapie der Dermoide des Mediastinum anticum.)

VON EISELBERG. *Archiv für klinische Chirurgie, Band 71, Heft 3.*

There are comparatively few cases in the literature of this character which have been subjected to surgical treatment, in all not more than a dozen, to which the writer adds two cases upon which he has operated.

The first case was one of a young girl of eighteen years, who was first taken with a sudden pain in the left side of the chest and presented certain symptoms in the upper left chest which led to the diagnosis of pleurisy. For the removal of fluid which was supposed to be present a resection of the ribs was performed and the characteristic contents of a dermoid cyst evacuated. The diagnosis was then perfectly clear, but a troublesome sinus resulted, for the relief of which the writer operated and made an attempt to remove the entire cyst. This he did not succeed in doing, and twelve days after the operation the patient began to have secondary hemorrhage, which continued for several days and as a result of which she finally died. This hemorrhage occurred from the internal mammary vein. At the autopsy a dermoid cyst of the anterior mediastinum was found, measuring thirteen by nine by seven cubic millimetres, and producing marked compression and dislocation of the left lung.

The second case was that of a woman of fifty-one, who was also first taken with rather severe and sudden symptoms on the left side which was regarded as pleurisy. In several instances exploratory puncture was practiced without any positive results, but finally a small quantity of material was withdrawn in which keratin cells, cholesterine crystals, fat drops and epithelial cells were found, without the presence of leucocytes or red blood corpuscles. On the basis of this, diagnosis of dermoid cyst of the anterior mediastinum was ventured and the operation for its removal performed. The entire cyst was removed with comparatively little difficulty, the attachments to the surrounding viscera being readily separated. The left lung was almost entirely collapsed and dislocated downward and backward.

In all the cases reported in the literature the first signs of trouble were the result of the growth of the tumor. Of forty-four cases of dermoid cyst of the anterior mediastinum collected from the literature, thirteen were treated by operation, and in only two instances was the cyst removed.

The writer believes, as a result of his experience, that it is much easier to remove the cyst than is ordinarily supposed, and advises in every instance an attempt at a total extirpation. Pneumothorax is no contrary indication, but should be met, either by the performance of pneumopexy, or the immediate complete suture of the wound. The principal object obtained by pneumopexy is the fixation of the mediastinum, which allows the healthy lung to act under the most favorable conditions. In case it is impossible to remove the dermoid cyst the wall of the cyst should be sutured to the external skin and as large an opening as possible made into it.

OBSTETRICS AND GYNECOLOGY

Edited by James P. Boyd, M. D., and H. Judson Lipes, M. D.

Conclusions Based upon the Study of the Lymphatics in Cancer of the Uterus. (Etude sur la generalisation aux voies lymphateqies du cancer de l' uterus.)

Mme. Oltramare. *These de Paris, Archives Generales de Medicine, No. 1, 1904.*

After an anatomical study of the lymphatics of the cervix and of the body of the uterus, the author, taking successively each of the three principal forms of cancer of the uterus, studied them in relation to the lymphatics. Squamous cell carcinoma of the vaginal portion of the cervix and cylindrical cell carcinoma of the cervical canal spreads precociously into the cellular tissue at the base of the broad ligament; this rapid invasion explains the frequency of compression of the ureter and renders complete extirpation of even slightly advanced cases of cancer very difficult. But involvement of the lymphatic glands is later and follows the infiltration of the broad ligament. Cancer of the cervix rarely spreads to the body of the uterus and only in advanced cases. When it spreads by the lymphatics it is through the anastomosis which unites the lymphatics of the neck with those along the body of the uterus. Primary epithelioma of the body of the uterus but slowly involves the broad ligaments, and the ilio-lumbar glands are removed only when the cancer, almost inoperable, has largely invaded the neighboring organs. It is only in the very advanced and rare cases that cancer of the uterus involves the whole lymphatic system and gives rise to the production of a "subclavicular adenopathy."

From this excellent thesis we are able to make certain practical deductions: that in cancer of the uterus, lymphatic involvement is not precocious, that the return of the disease after operation is especially localized in the pelvic cellular tissue or in the cul-de-sac of the vagina and not in the lymphatic glands. Complete extirpation of the lymphatic glands in the course of abdominal hysterectomy does not seem to have ameliorated the prognosis. It is therefore, useless and even dangerous, because of possible inoculation, to endeavor to obtain all the ilio-pelvic glands during the removal of the uterine cancer.

The Elimination of Mercury by the Menstrual Blood in the Course of Mercurial Treatment. (Elimination du mercure par le sang menstruel au cours du traitement mercuriel.)

NIKOLSKY. *Archives Generales de Medicine, No. 1, 1904.*

We are well aware that mercury is eliminated by the urine, the perspiration, the feces, milk and saliva. The elimination by the urine is one of the most important features because by this means we may estimate the saturation of the organism by this metal and on the other hand we may aid in its elimination by producing a polyuria. The elimination in the perspiration is also of great value for the same reasons. Up to the present no one has studied the elimination of mercury by the menstrual flow. In order to do this the author collected the blood by means of a condom fixed to a circular pessary surrounding the cervix. In order to determine the quantity of mercury eliminated in a given quantity of blood, the latter was measured and concentrated hydrochloric acid added to decompose the organic substance liberating the mercury contained, which was obtained by distillation. In this way it is found that the concentration of mercury in the menstrual blood reaches from 1 :40,000 to 1 :14,500. This concentration is in direct ratio to the mercury introduced into the organism, since, after a subcutaneous injection of two cubic centimeters of a 1 to 100 solution of benzoate of mercury, the proportion of the blood was 1 to 383,000, while after six injections it was 1 to 40,000. This concentration is not proportionate to the number of injections; it increases slowly after a number of injections. The proportion of mercury in the menstrual blood is generally six times greater than in the urine.

PSYCHIATRY

Edited by G. Alder Blumer, M. D.

Clinical and Experimental Observations on Katatonia.

LEWIS C. BRUCE and A. M. S. PEEBLES. *The Journal of Mental Science, Vol. xlix, No. 207, October, 1903.*

These observations were made upon twelve cases of katatonia, ten women and two men. The symptoms were classical, as described by Kahlbaum and were divided into stages: (1) the stage of acute onset; and (2) the stage of stupor terminating in recovery or complete or partial dementia.

The physical symptoms of the acute stage consisted of disorder of the alimentary system. There were no desire for food, and often no thirst, and vomiting. The heart's action was frequently rapid, irregular and intermittent, and the arterial pressure rose until the acute stage terminated. The skin poured with perspiration, and blotchy and pustular rashes were present in half of the cases. Menstruation ceased during the acute stage. Dulling of sensibility to heat, touch and pain was very common. The pupils were dilated and sluggish. The special senses of sight and hearing were not affected, but taste and smell were often completely disorganized. The organic reflexes were not under control and the skin and tendon reflexes were exaggerated. At uncertain intervals the voluntary muscles passed into a state of katatonic spasm, which lasted for a few minutes or hours. The mental state was essentially one of confusion. Vivid auditory hallucinations of a distressing nature were invariably present, giving the appearance of preoccupation and attention, and often inducing paroxysms of terror. In the intervals between these paroxysms the patient might lie for hours with eyes closed, and occasionally there were brief periods of sanity. In half of the cases the acute period terminated in an acute febrile attack with leucocytosis.

Bacterial examination of the blood revealed organisms in three cases, and in one of these a pure culture of a short streptococcus was obtained. On testing the agglutinative power of the blood upon this streptococcus it was found in a dilution of one to thirty with a broth culture of the organism that the agglutination was complete in two hours. The broth cultures were then experimented with upon rabbits with a slightly suggestive result.

These studies of the authors are summarized in the following conclusions:

(1) In katatonia the following diagnostic symptoms are never absent: a prodromal period of gradual onset, which leads into the period of acute onset, with aural hallucinations, mental confusion, paroxysms of excitement, impulsive actions, katatonic spasm of the muscles, a hyperleucocytosis which at the termination of the acute stage indicates a virulent toxæmia; in the second stage a condition of stupor with muscular resistiveness to passive movement.

(2) That even at the onset of the disease there is in about seventy per cent. of the cases an agglutinin in the blood-serum which appears to be a specific agglutinin to a short streptococcus which was isolated from the blood of an acute case of katatonia.

(3) That by infecting rabbits through the alimentary tract or bloodstream with this streptococcus a condition of malaise with irregular temperature, increased skin reflexes, and mental hebetude is induced. This disease tends to terminate naturally in healthy rabbits in about six weeks, and a condition of immunity is established to this organism.

(4) That treatment by an antiserum obtained from a goat has given no beneficial results.

(5) That active immunisation of patients in the stuporose state produced no curative effect.

(6) That active immunisation in the acute onset of the disease, tried so far as one case only, produced undoubted benefit, but how this beneficial effect is brought about cannot be explained by any theory at present held with regard to the production of immunity.

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IS NURSING A PROFESSION?

Address before the Graduating Class of the Training School for Nurses at the Albany Hospital, on Saturday, May 14, 1904.

BY HENRY M. HURD, M. D.,

Superintendent of Johns Hopkins Hospital, Baltimore, Md.

I come before you on this occasion well aware that this is an hour for congratulation and not a fit time for exhortation, criticism or too sober advice. The predominant note should rather be one of satisfaction that you have completed your period of training as pupil nurses in this model hospital and are soon to be free to follow your individual preference and inclination in your chosen calling. You have wrought faithfully and conscientiously and have already experienced the best reward of your hard labor, that inward reward which follows the faithful performance of a duty well done. Some of you will doubtless continue to do hospital work and as superintendents, head nurses or operating-room assistants will become teachers and living examples to other pupil nurses. Others will doubtless engage in private nursing in the families of the well-to-do or in district nursing among the poor. Others doubtless (I speak from some experience of graduated nurses) will eventually turn aside from the profession of nursing altogether and devote the knowledge and experience here acquired to the establishment of a home and the care of a family. In whatever branch of service you are to spend your future lives you will find ample use for the knowledge which you have acquired and the mental alertness and manual deftness which you have developed. It is sometimes customary to speak with scant praise of the theoretical knowledge of her profession which the nurse thus acquires and to contrast her knowledge and training with the sympathetic touch of the natural born untrained nurse, concerning whom we hear so much when physicians and clergymen write to urge us to make room for their proteges in our training schools. I may say in passing that one almost wonders why women with such a genius for nursing require any systematic training whatever and why they may not with safety be left free to follow natural instincts and intuitions. And yet we know that they do clamor to come into schools for the education of nurses and seem to be eager for that knowledge which we are sometimes led to feel must be a detriment rather than a benefit to the nurse who has or fancies she has a heaven-born talent for the care of the sick. The natural physician with a similar talent has well-nigh disappeared in competition with the thoroughly trained and well-equipped scientific physician but the highly gifted natural nurse still lingers in the popular mind as superior to the instruction of training schools and we still hear much of her excellent qualities. Some of this feeling doubtless comes from an impression that many of the branches of knowledge taught in the schools have but a remote bearing upon the true work of the nurse—the personal care of sick people—and that in the acquisition of theoretical knowledge the nurse loses the freshness of her enthusiasm and her enjoyment of actual personal nursing the sick.

Those of us who drew our youthful inspiration and derived our lessons in morals and manners from Jacob Abbott fifty years ago will recall with pleasure and also with humility (they were so far beyond us) those model characters, Jonas, Beechnut and Wallace who although of tender years always displayed a maturity of judgment and a rectitude of intention and performance far beyond their years. To my boyish imagination they were superior beings and well-nigh infallible. They always did the right thing under all circumstances and displayed a marvellous prescience as to their future. They avoided all the pit-falls which so freely strew the pathway of youth and never made any mistakes. Wallace especially, a freshman in college, possibly fifteen years ago, was a paragon of wisdom and learning. This exemplary youth spent a hot summer morning during his vacation in diligent study of an encyclopedia to familiarize himself with the details of the manufacture of sugar in Cuba because as he explained he intended to study law when he had completed his college course and as he deemed it possible that after he had acquired this profession he might have a case in Cuba where litigation involving the manufacture of sugar would require expert knowledge he had taken this early occasion to study up the subject. By learning all about the manufacture of sugar when he had leisure he anticipated that he would not be compelled to pause in his subsequent professional career to acquire this knowledge. I well remember when I read this how remote the contingency seemed to be for which he had made this timely provision and how much I feared that his knowledge of sugar-making might become obsolete before he found an opportunity to utilize it. The same thought has doubtless occurred many times to the members of this class in regard to their own studies. It has at times, seemed difficult to connect or at least to see the connection between theoretical and practical knowledge, to connect anatomy with bed making, physiology with the use of a draw-sheet, the chemistry of foods with boiling an egg or serving a dinner or the calculation of calories and food values with the making of toast.

We must not forget, however, that all knowledge is useful and, to use the words of a witty friend, like a pistol in Texas one may never know when and how urgently it may be needed. I am sure that I shall be pardoned in the state of New York if I illustrate the value of apparently unnecessary knowledge by recalling an incident in the history of one of her many famous men—S. Wells Williams, a man educated by the way, in this vicinity. In 1837 an obscure, unknown missionary printer at Macao in China, afterwards a distinguished and world-renowned Chinese scholar, learned the Japanese language in order that he might instruct some shipwrecked Japanese sailors who by the cruel law of Japan had been perpetually banished from the country because they had been rescued from death and had been landed upon the coast of China. He had no thought of going to Japan to reside but had familiarized himself with the Japanese language in order that he might give better religious instruction to the men who had been thrown upon his charity by their misfortune. Sixteen years later when Commodore Perry came to China as a representative of the United States to fit out an expedition to open Japan to the commerce of America he learned that the only available person to act as an interpreter for the expedition because of a knowledge of Japanese and English was this same missionary printer, whose acquisition of seemingly useless knowledge nearly a score of years before had fitted him for the position. The subsequent treaty which opened the ports of Japan to the United States would probably have been impossible without the knowledge which he had acquired for the better discharge of an unusual duty.

Permit me to relate another similar incident which came under my observation in Baltimore. Several years ago a member of the United States Army Medical Corps was detailed for nominal duty in Baltimore by the then surgeon general of the army so that he might have an opportunity to study in one of the hospitals the practical care of sick soldiers with a peremptory injunction that he should not devote any portion of his time to theoretical study. He was informed that his whole duty began and ended in familiarizing himself wth the practical details of the care of sick soldiers. Fortunately for science and the welfare of humanity (including sick soldiers) Surgeon General Baxter died suddenly a few weeks after he had assigned the army surgeon to this duty and the latter was left free to pursue special and hitherto forbidden studies in pathology and bacteriology. He did not neglect his practical work but he rather pursued it with more intelligent enthusiasm because of the greater theoretical knowledge which he obtained. As a result of this seemingly unpractical study of pathology and bacteriology during the occupation of Cuba following the Spanish-American war he discovered the cause of yellow fever and demonstrated that the true way to prevent yellow fever was to destroy the mosquito. In consequence of knowledge which he acquired because he loved theoretical knowledge the late Dr. Walter Reed of the U. S. Army Medical Corps made a discovery which will save the lives of more soldiers and civilians in tropical countries than will be saved by the combined efforts of any hundred other army surgeons who may devote themselves strenuously, conscientiously and continuously to practical work as it is termed. In Havana since his discovery for the first time within a century yellow fever has practically disappeared wholly as the result of sanitary measures initiated by the government in consequence of this knowledge.

In the language of the late Senator Davis of Minnesota: "We cannot have too much knowledge. I believe in superfluous knowledge. It is knowledge that differentiates us. I have slight faith in what they call genius. I think that any man can attain success and great success, by good hard studious labor; not by intermittent labor, but by constant consecutive effort. The men who have achieved success are the men who have worked, read and thought more than was absolutely necessary; who have not been content with the knowledge sufficient for the present, but have sought additional knowledge and have stored it away for emergencies. It is this additional knowledge that equips a man for everything that costs in life. There would be fewer wasted opportunities if there were more real ability to grasp them when they present themselves."

The danger in fact is not that the students of nursing or medicine or law or theology will get too much knowledge but it is rather that they will get half-knowledge. I am glad to feel that the old standard of a learned man or woman no longer holds and that knowledge is now something more than a cultivation of the memory or the ability to recite a given task by rote out of a book or to repeat the required lesson word for word. Such imperfect and one-sided ideas of knowledge have probably lingered longer in schools for young women than anywhere else. In these a little smattering of music, a few simple exercises in composition and an immense amount of memorizing of text books formerly constituted the whole curriculum. Students were not taught to think or to apply their knowledge. There was no systematic training of the eye, little useful training of the hand and no apparent connection, in fact, between the knowledge poured into the mind of the unfortunate pupil and any practical outcome. The intellectual reservoir of the young woman was always receiving and never imparting knowledge. The capacity to receive knowledge was gauged by the length of the course and the process of education seemed complete when the school days were over. There was little assimilation of this knowledge. It did not enter into the life of the individual and become a part of her being. There was a lack of thoroughness and of ability to connect theoretical knowledge with the upbuilding and development of the pupil's mind.

In bringing about a better educational system for young women, the methods of training schools for nurses have borne an important part, and their great utility should not be forgotten. So much in fact has been done by them for the education of women in its truest sense we are fully justified in inquiring whether nursing may not be considered a profession rather than an avocation or a trade. In former days I think it was justly considered a trade, when it was learned wholly by experience and generally practised as a means of livelihood in default of other means of gaining a living. It speaks well of the eminent fitness of woman to undertake the duties of a nurse to recall that in all ages, during all recorded time, she has appropriated the care of the sick as her special duty and has shown an enthusiasm which has led her to heroic and self-sacrificing devotion without the aid of schools or special training. Guided by her instincts she became self-disciplined under the necessities and demands of her arduous task. She has earned and deserved the praise and gratitude of mankind by her devotion to the sick, whether in the home, in the hospital, in the plague-stricken camp or in the crowded tenement. Through the development of these same qualities during the last half century by study and careful training, the nurse has accomplished so much better work than she formerly did unaided that the time has seemingly come when nursing has earned the right to assume a larger place in the world's work and to be dignified as a profession. The term profession implies unusual knowledge on the part of its possessor—more knowledge than merely suffices to get one's daily bread. When we use the term we mean the full knowledge of an art in its relations to other arts. It implies a growing knowledge, an increasing mental development and an ability to meet and deal with new conditions. A profession has a foundation which permits of expansion. It is more than the knowledge of a formula or a familiarity with a rule of thumb or an ability only to meet an emergency which one has encountered before. One who "professes" a profession should have developed a receptiveness of mind which will enable him to bring old principles and fundamental knowledge to meet new complications. A trade or avocation is special and concrete; a profession is broad and general. A profession implies mental alertness and scientific activity based upon thorough knowledge, developed from well established principles. An avocation implies a knowledge of precedents and a familiarity with the accepted way of accomplishing a particular object. The paths of association have become well-trodden and the mental and physical activities of the individual move smoothly and uniformly to attain a uniform result. Does the well trained nurse require anything beside this? Has she need of anything more than the artificer or handicraftsman who has learned to do certain prescribed details of her task accurately and deftly? Unquestionably she requires a broader training and needs to use a wider range of knowledge, based upon discipline of a very different sort. She must know more or less fully, and the fuller the better, anatomy, physiology, materia medica, hygiene, methods of sterilization and disinfection, and the nature and properties of foods and their proper preparation for the sick. These are her preliminary studies, and are pre-requisite to an adequate appreciation of her practical work. To this scientific knowledge, whether broad or narrow, and I repeat, the broader the better, are added special knowledge and training acquired by constant practice and actual contact with the sick. She becomes familiar with the special care of the fever patient or the victim of pneumonia and knows how to minister to the wounded or to nurse a surgical patient. She is familiar with the requirements of maternity nursing, with the care of infants and children, with the care of tuberculous patients, and with the management of the nervous and insane. She can assume the responsibility of a large operating room; she can manage a ward filled with desperately ill patients, or she can organize the nursing service of a hospital. She can weigh out the ingredients of a surgical solution according to the metrical system, and make the solution accurately and quickly. She can make out a temperature chart, can write special sick notes, and is able to furnish the physician a concise, intelligible and well proportioned account of what she has done for her patient during his absence.

In the modern care of a tubercular patient think, for example, how much expert knowledge she must possess! She is required to know how to ventilate a room, how to clothe the patient, how to secure fresh air without an injurious draft, how to disinfect the sputum and render it harmless to others, how to feed the victim of a wasting disease, how best to maintain and fortify the failing powers and finally how to meet the complications which may arise—a sudden hemorrhage, a distressing night sweat, an attack of dyspnoea, a harassing cough or an access of fever. Then think of the tax upon the ingenuity of the nurse to devise occupation and exercise suited to the strength and to foster a morale which will keep the patient's courage up and enable him to maintain an effective fight wth a chronic and depressing disease. Is it unreasonable to assert that a nurse should be as well equipped for her special work as a physician for his, and should equally merit entrance to a learned profession? If nursing is a profession, does it lead anywhere? That is, does it fit the nurse to undertake anything more than the care of the sick? I believe that it does. Let me in answer designate briefly some of the paths of usefulness which are open to the feet of the well-trained nurse.

Teaching.--First of all I would mention the great demand which now exists for nurses who are competent to teach other nurses. It is apparent to all that the former methods of instructing nurses in their duties by lectures given for the most part by busy practitioners and often in a haphazard manner are now inadequate to meet the educational requirements of training schools. Already in the best schools paid instructors are provided in fundamental branches like anatomy, physiology, food chemistry and pharmacology, and the effect upon the future of the pupil nurse has been most salutary. She has realized that her future work must depend upon her mental growth and development and she has early attained that educated enthusiasm which is the best guarantee of sustained and intelligent effort. It seems to me that such instruction can best be given by trained nurses from the standpoint of a nurse, or in other words, by one who appreciates the amount and kind of knowledge which a nurse ought to possess. To-day training schools throughout the United States are inquiring for such teachers and the openings for trained nurses to engage in this branch of teaching are broad.

Administrative Work.—There is also an equal demand for trained nurses to engage in administrative work as heads of hospitals and dispensaries, matrons of protectorates and reformatories, superintendents of homes for the aged, the infant or the orphan, or managers of public or private sanitaria or of children's aid societies. The faculty which the trained nurse develops to deal with the sick, the friendless, the homeless, the destitute or the depraved renders her especially useful in any administrative capacity and the demand for her services is a growing one.

Semi-Public Nursing.—District nursing, the special nursing of tuberculous patients in their own homes, the care of orthopedic cases among the poor also make a special call for the services of the trained nurse and the demand far exceeds the supply.

School Work, etc.—The same is true of the inspection of schools and school children as practised in New York and Chicago to prevent the introduction of contagious diseases and to limit the spread of affections of the eye. The usefulness of the trained nurse in this direction has been generally recognized. To this may be added nurses' settlements among the poor which have proven such a means of social up-lift among the poor, the ignorant or the depraved—these and many other similar agencies can only be mentioned. The eminent fitness of educated nurses to assume their management and successful operation is attested by all who have given attention to these subjects.

The principal difficulty, at present, however, is to discover the nurses who have been fitted by education and development to enter upon these occupations so full of opportunity to her, and of blessing to charitable and humanitarian work.

These women can only be developed by giving them a more thorough general education in the broadest sense of the word. To this should be added a fuller special education looking towards preparation for undertaking nursing as a profession and broad systematic training in the profession of nursing itself. The time has passed when a young woman can be fitted to fill these exacting responsibilities without thorough, long-continued, wise, modern training. It is the duty of all who are connected with training schools to see that young women receive this education and thus become fitted for the discharge of duties which they can do better than any one else.

I am reminded, however, by the passage of time that in my zeal for the general good I must not lose sight of the fact that I am here to say a few special words of advice to those who are to go forth to-night from the Training School of the Albany Hospital.

1. I would suggest that you continue to be students. Your period of general study is now over. During the past three years your studies have been arranged for you and you have pursued them assiduously in order to attain the completion of your course and the coveted certificate of graduation. You have not attained all the knowledge which you are to need in your future career. You have simply laid a foundation for your future work. You know what you have learned and are aware of your present defects. You know how to study. Although you have only taken a few draughts from the well-spring of knowledge, you have at

least learned where pure water is to be found and how to drink deeper. You are now placed upon your own resources. Your bark is launched and henceforth you must ply your own oars if you would make any further progress in your chosen profession. Let me urge each one of you to pursue some special line of study. Get the latest text-books on nursing each year and read them. Learn to speak. Familiarize yourselves with public questions. Avoid gossip and tattle. Fill your minds so that you may be fit companions for cultivated persons. Continue to give earnest and careful thought to all matters connected with nursing and keep your minds bright and active. If you are to engage in private nursing, you will inevitably feel the isolation of your lives in a professional sense and a benumbing of the faculties you have been cultivating unless you take special pains to resist the tendency.

2. To assist you to keep yourselves abreast of the best thinkers in your profession, I would also suggest that you take one or more of the excellent journals which are now published for nurses. Read them carefully each month and note the new ideas which are contained in them. Above all things do not be content with reading only, but contribute something of your own experience. Learn to use your own pens and to feel the responsibility of doing something for the general good. Light the torch of knowledge and pass it along.

3. I would suggest that you identify yourselves with the various forms of charitable work which at present engross the time and attention of the benevolent, especially in our large cities. I have already pointed out briefly that the educated nurse, by her training and experience, is especially fitted to deal with the numerous social problems which arise in the care of the sick poor in large aggregations of population. She knows what attentions the poor require in sickness and what expenditures are needed for special diet, clothing and medicine. She is also familiar with hygienic requirements in crowded populations, and is able to give practical counsel and wise directions to those families which are placed under her care. I have sometimes heard the criticism made that the trained nurse in charitable work is too much inclined to yield to sentiment and to administer relief in an impulsive way and is not content to wait for a slower but possibly a more permanent remedy for the condition. For this reason it seems essential that

the trained nurse should make a special study of all these problems to the end that she may act not only kindly, but wisely. One of the most interesting developments of modern times is the organization in many of our large cities of what are known as the Instructive District Nurses' Associations. These associations are placed under the charge of an experienced trained nurse, and to her as assistants are assigned district nurses sufficient to cover different portions of the city. It is the duty of the head nurse to coordinate, direct and supplement the work of the district nurses. In many cities she has, in addition to this, the added duty of interesting the public in her work and also of giving advice, counsel and instruction in health matters. She goes to the mother's meetings or from house to house in the poorer districts to advise them as to the care of children, the ventilation of homes, the preparation of food, the destruction of garbage, and the thousand and one things which make for health in the family. It is essential in every charitable enterprise that charitable work should be wisely done. You as nurses can better assist in doing this work from your training and experience than any other class. In this manner, you can avoid what, it seems to me, is a growing evil among trained nurses, the habit of living alone and of getting out of touch with the nursing profession.

4. To further guard against this tendency it is also in my judgment important that every trained nurse should, from time to time, return to the training school from which she graduated or go to some good hospital for a longer or shorter period of service to familiarize herself with new methods and the advances which are made in nursing. It is not at all probable that you have learned all nursing in your period of study. You have undoubtedly done well and made good use of your time, but many changes and improvements are constantly occurring about you. Active-minded, earnest young women are devising new methods of caring for the sick, new apparatus for doing the work better, while new discoveries on the part of medical men bring new emergencies to be met. For this reason it is absolutely essential that at least once in two or three years you should renew your touch with hospital life and become familiar with the improvements which are being made in hospital nursing.

5. Every nurse should ask herself at regular intervals whether she is becoming a slave to routine, or whether she retains sufficient

mental flexibility to be able to look upon each case which comes under her care as an individual case to be nursed not in a routine way or because patients were so nursed when she was a pupil in the hospital, but whether her methods of nursing are demanded by the condition of the patient. There is no evil, in my judgment so great or one so calculated to impair the continued usefulness of a nurse as falling into routine methods. There are, I am glad to say, no cast-iron rules in nursing or in medicine, and hence I would suggest that a nurse familiarize herself with the circumstances of every case and think out the best methods of bringing aid to the individual patient. Sydney Smith in a witty characterization of the different classes of people with whom he came in contact spoke of them as "the up-takers," "the clearers," "the sheep-walkers," the "lemon squeezers" and the "let-well-aloners," *et al.* The "sheep-walkers" were those who always followed some one else's lead and went each forward in the path marked out by his predecessor. Do not as nurses be simply sheep-walkers.

6. I am glad to feel and to know, in my long experience with nurses, that the question of earning money in their work is a subordinate one, and that the great majority of trained nurses are engaged in the work in consequence of their desire to do good and to bring relief to unfortunate sufferers. There are many it is true, to whom the compensation is acceptable. They earn the money by hard work; they need it, and generally they use it wisely. I have noticed, however, on the part of some trained nurses a tendency to spend money freely and to disregard the possibility that they may need it at some future time. I would consequently urge every nurse to bear in mind the fact that she is engaged in an occupation which taxes the mental and physical strength of the individual to the utmost. There are weeks of intense mental anxiety and physical over-exertion which must inevitably sap the strength and limit the years which are before the nurse for her career. Hence, it seems important for nurses to realize that this severe strain cannot be endured indefinitely. It would in my judgment be a wise precaution for every nurse to secure out of her savings an annuity or endowment or a life insurance, payable at an age when she is likely to feel the burden of her excessive work, so that her future may be provided for. If nursing is to become a profession to be followed for life it behooves the members of it to so organize public sentiment among

themselves that it may become a self-supporting one and provide for the traditional rainy day. By establishing such traditions among nurses you can attract and retain desirable members in the profession. The sentiment of the profession should require every nurse who is receiving a good compensation for her services to lay aside a liberal portion every year to provide for the contingencies of illness or old age.

Lest I may seem, after all, to give you advice, when I did not intend to do so, I would, in conclusion, bid you welcome to your profession in behalf of the medical profession. As physicians we are glad to welcome you to a profession which is closely allied to our own and we hope and expect to avail ourselves of your services and your expert knowledge. There is abundant room for you in the world and abundant work for you to do. We believe that you will do it faithfully, intelligently and efficiently, and reap a reward here and hereafter.

> "The paths of pain are thine. Go forth
>   With patience, trust and hope.
> The sufferings of a sin-sick earth
>   Shall give thee ample scope.
>
> "Beside the unveiled mysteries
>   Of life and death go stand
> With guarded lips and reverent eyes
>   And pure of heart and hand."

ADDRESS

UPON THE PRESENTATION OF DIPLOMAS TO THE GRADUATING CLASS OF THE ALBANY HOSPITAL TRAINING SCHOOL FOR NURSES, MAY 14, 1904.

By WILLIAM L. LEARNED, LL.D.

Young Ladies of the Graduating Class:

I congratulate you that you have worthily finished the years of your tutelage and have reached the honor of being Trained Nurses. There have doubtless been many wearisome days when you may have felt discouraged by the laborious work. But you have kept right on and so have reached the goal. Not of course that the days of work are over. But henceforth the work will be more independent and both the responsibility and the reward will be greater.

If I were to take a text from which to say a few words I might select one from the advice given by the great Apostle to his friends at Thessalonica. It contains three precepts which every one may well follow and perhaps you, especially, in your new field. "Study to be quiet and to do your *own* business and to work with your hands."

Study to be quiet. This is a primary rule in the sick room. Loud talking every one avoids. But there is a noisy way of trying to be quiet which is worse than loud talk. Learn to move gently, with none of the rustle of clothes and swishing of silk which, in the proper place, have such a soul-satisfying sound to the ear of woman. This deftly moving about; this noiseless attendance; this understanding of a patient without his speaking; these are things which are beyond the clumsy movement of a man but which are peculiarly within the power of a woman. Study to be quiet.

"And to do your *own* business." That is, not merely to do your own, but also not to do the business of others. Coming in, as you will, to the privacy of a house, you will see and hear many things which belong to the family and not to the outside world. Do not see or hear these things, as far as you can avoid doing so. And what you necessarily hear or see shut up in your own mind and forget as soon as possible. This is a sacred duty, such as rests also on the physician. It may be that important secrets will come to your observation, or it may be only the ordinary family life with its own peculiarities. At any rate remember this, that part of your own business is to speak of nothing which does not concern you. If the family desire your advice or aid in anything outside of the sick room they will undoubtedly ask it. We often say to an officious person: "Mind your own business." Now, while I do not think that the Apostle intended exactly what we mean by that phrase, it is no violation of his thought to give it this application. She who does her own business faithfully is not likely to interfere with what does not belong to her.

"And to work with your hands." Do not regret that you are called upon to work. The happiest life is the useful life. And your work has the peculiar satisfaction that you see constantly the good which you are doing, the comfort you are giving, the relief you are spreading around you. And here let me remind you that sickness in a family causes, with few exceptions, extra labor among the household in every part. Your presence, too, tends to increase this labor. Strive to lighten this increase as far as you can. Labor with your hands so that the labor of others shall be increased as little as possible. It is easy to be exacting; it is not as easy to be forbearing in your demands. I am not afraid that, with your past training, you will spare yourselves in any attendance on the sick. But have also some consideration for the well. For them, also, work with your hands, and thus lighten the burden which sickness always brings to all the members of the family. So when you shall go from the house after your work shall have been finished, your departure shall be felt as a loss, not as a relief. Notice, too, that there are some people who are ready to work and to work all day, not however with their hands but with their tongues. Do not make that mistake.

Let me repeat the wise injunctions: "Study to be quiet and to do your *own* business and to labor with your hands." Thus equipped with the knowledge and skill you have acquired in this school, you shall do noble work in your most worthy calling and shall gain that reward which always comes to good work faithfully done.

And now, with the good wishes of your instructors and guides, we send you forth to take up your blessed work of comforting and helping the sick, thus following at a humble distance that Divine Healer, at whose touch disease departed, health returned, and new vigor filled the wasted limbs, and before whose voice even Death, defeated, fled away and the flush of life came back to the pallid body.

ACUTE PURULENT OTITIS MEDIA.

SOME SUGGESTIONS AS TO ITS THERAPEUTIC MANAGEMENT AND THE PREVENTION OF ITS COMPLICATIONS.

By FREDERICK T. CLARK, M. D.,

Attending Surgeon, Eye, Ear, Nose and Throat Department, Noble Hospital, Westfield, Mass.

Owing, perhaps, to the debilitating effects of the protracted and severe winter from which we have just emerged, with its attendant train of colds, influenzas and pneumonias, an unusual number of cases of Acute Purulent Otitis Media have resulted. This disease is not of interest to the otologist alone. The general practitioner, under whose care the majority of these cases come, should be exceedingly interested in this condition; and a discussion of it just now will be, at least, timely. The importance of this disease is frequently underestimated and for this reason an earache with discharge of pus receives little or no attention. If one stops to consider the large number of children rendered deaf each year as the result of this disease following scarlatina; to the numbers that fill our orphanages, condemned to the horror of a lifetime of deafness, then the condition is seen in the light of its true importance. Those cases having a fatal ending, that occur, not so frequently as in former years, it is true, as a result of improper care and the development of intra-cranial complications, should serve as a warning to us all and inspire us with renewed zeal in the intelligent management of these cases.

To insure an intelligent discussion of the therapeutic management of this disease a brief mention of the conditions that are etiologic will be of value. The vast majority of these cases are due to an infection which gains its entrance to the middle ear through the eustachian tube. Injury to the drum through the external auditory canal, by blows on the head, foreign bodies, or the improper use of instruments may light up an inflammation that may become purulent. The disease does occur during such constitutional disturbances as the puerperal state, diabetes, syphilis and tuberculosis; but even in these conditions the infection probably gains its entrance to the ear through the eustachian tube. So then, bearing this fact in mind, *i. e.,* the eustachian tube as the channel of infection, we have the key to the important prophylactic treatment that will be discussed farther on.

Influenza, severe coryza, and purulent inflammation of one or more of the accessory nasal cavities, the latter condition being attended by a dropping of pus into the naso-pharynx, have been in the writer's experience the most frequent causes of Acute Purulent Otitis Media. The acute exanthemata, especially scarlet fever and measles, have been responsible for many cases. Hypertrophied adenoids and faucial tonsils by their pressure on surrounding tissues and vessels cause a congestion and swelling of the pharyngeal vault with more or less occlusion of the eustachian tube. This condition, so common in children, is a frequent cause of deafness and purulent inflammation.

The beginning of the disease is characterized by intense pain in the ear, boring or lancinating in character and radiating from the ear to the jaw, temple, parietal and occipital regions. In some cases the pain is not severe, but these are infrequent and occur mostly in tuberculous infections. The temperature is elevated. In young children it may be as high as 105° F., while in adults a lower register is usual, varying from 100° to 103° F. Tinnitus, of a roaring, whistling or pulsating character, is a frequent symptom, and deafness, depending on the intensity of the inflammation, may be exceedingly slight or well marked.

Perforation of the drum with discharge of blood streaked pus, may occur within a few hours from the onset of the disease or it may be delayed for days or even weeks. With perforation usually comes relief from pain and lowered temperature, unless the periosteum or mastoid be involved, when the pain may continue and but little drop in the temperature noted. Convulsions often usher in an attack in infants, and meningitis may be suspected from the fact that the child grasps at the ear or side of the head.

In every case with pain in the ear it is extremely important that a diagnosis be promptly established. To do this the head mirror and speculum must be used. Of course, if an ear be discharging when called to the case the diagnosis is already established, but even then the drum should be carefully examined to ascertain the location and size of the perforation. In all cases of otitis before perforation, the drum will be found reddened and in many cases swelling of the walls of the external auditory canal will be present. The degree of congestion and swelling will depend on the intensity of the inflammation. Bulging of the membrane may or may not be present. The foregoing considers in a very brief and general way the causes of the disease under discussion and its prominent symptoms.

Before taking up the therapeutics of this condition, I wish to consider for a little the complications that may ensue and which are far more to be dreaded than the disease itself. Cases of acute purulent otitis media are apt to follow a protracted course in tubercular or debilitated persons. In such diseases as scarlet fever, measles and diphtheria the infection is often so virulent that unless a prompt incision is made in the drumhead, caries of the ossicles and tympanic walls results. It is in these cases that great disturbance of the hearing often occurs due to the extensive adhesions between the drumhead and tympanic walls, or between the ossicles themselves. When involvement of the labyrinth takes place, a great destruction of the ossicula and drumhead occurs, then deafness is very apt to be well marked. The horror and handicap which a lifetime of deafness entails, or the disgusting odor which a running ear often exhales, to say nothing of the danger with which it constantly menaces its unfortunate possessor should serve to imbue us with the determination to give these cases the prompt, careful, conscientious treatment they require. Other and severe, even fatal complications that occasionally follow this disease are acute inflammation of the pneumatic cells of the mastoid, epidural and cerebral abscess, meningitis, thrombosis of the lateral sinus with pyæmia and septicæmia.

With a full realization of the importance which this disease may assume let us take up the consideration of its therapeutic management. Bearing in mind the fact that micro-organisms gain their entrance to the ear from the naso-pharynx, through the eustachian tube, we have at once suggested to our minds the plan of our prophylactic treatment.

In influenza, scarlet fever, measles, diphtheria, inflammation of the nasal accessory cavities with purulent discharge into the naso-pharynx, it is of the greatest importance that the infection be prevented from gaining an entrance to the middle ear. To accomplish this the nasal cavities and naso-pharynx should be thoroughly irrigated at least four times in the twenty-four hours, *i. e.,* once in six hours, with quantities of a warm, alkaline, cleansing solution. Seiler's or Dobell's solution answers admirably. Two quarts at least, should be used at each irrigation.

The ordinary fountain syringe will be found very convenient and will answer every purpose. It should be hung with its lower end not more than a foot above the patient's head. The small hard rubber tip, or, better, no tip at all, should be used. The patient's head should be inclined well forward with a sizable basin or bowl in front of him to receive the solution as it flows from mouth and nostrils. If the patient be an infant or child too young to co-operate with its attendants, its arms should be wrapped firmly to its sides with toweling, and the nurse should take it in her arms at the same time seeing that the child's head is inclined well forward. In this position the end of the delivery tube should be gently inserted into the nostril and the solution allowed to thoroughly irrigate the nasal cavities and pharynx. The fluid will be discharged through the opposite nostril and mouth, thus cleansing the nasal fossæ, naso-pharynx and mouth. The delivery tube should be changed to the opposite nostril, thus insuring a thorough cleansing of both sides.

I am aware that many authorities advise the use of nasal sprays and decry the use of douching, or, as I prefer to call it, irrigation. My opinion is that a spray in such conditions is of little value as a cleansing agent, but I do believe that thorough irrigation of the infected cavities with a warm, alkaline, antiseptic solution which dissolves and removes the muco-pus is of very distinct value. If the proper precautions are observed, viz., regulation of the height of the douche bag together with a forward inclination of the patient's head, no anxiety need be felt on the score of forcing infection into the eustachian tube. Immediately after the irrigation let the patient gently blow out the nostrils to rid them of any superfluous solution and then spray into each nostril, having the patient inhale at the same time, a few whiffs of some such antiseptic protective as the following:

℞ Phenol ....gr. ii
Menthol ....gr. iii
Eucalyptol.
Ol. pini pumil ....aa m. X
Benzoinol q. s. ad................℥ j
M. Sig. Use as nasal spray and inhalant.

I believe that such a management of this class of cases, if begun early and thoroughly carried out will be successful in preventing many attacks of acute purulent otitis media that might otherwise develop.

Hypertrophied adenoids and faucial tonsils, together with hypertrophic rhinitis, as evidenced by mouth breathing, a vacant, listless expression and snuffles, are a constant menace to the ears of these patients, and indeed to their general well being. The adenoids and tonsils should be removed by operation as soon as the physician's attention has been drawn to them. No other treatment of these conditions is worth consideration, and the physician who fails in this respect is negligent of the welfare of his patient. As an otologist, I believe that in this class of cases we cannot sufficiently emphasize and urge upon the general practitioner the importance of these preventive measures, and that their adoption as routine treatment will result in fewer cases of otitis.

When called to the management of a case already developed, if the symptoms are mild the patient should be cautioned to remain quiet in the house while in severe cases he should be put to bed and given light diet. The bowels should be thoroughly moved by divided doses of calomel followed by a saline. I am fond of prescribing a tablet of calomel, gr. one-quarter, every half hour till eight or twelve tablets have been taken. Then follow in three hours after the last dose of calomel with a dessertspoonful of Rochelle salt. If there is much fever with bounding pulse, drop doses of tincture of aconite every half hour are of value. If the case is seen early and examination of the drum shows only a moderate amount of hyperæmia, then the application of three or four leeches in front of the ear close to the tragus may succeed in reducing the congestion. The artificial leech or scarificator may be used in place of natural leeches.

For the pain in the ear, continuous irrigation with water as hot as can be borne will give the greatest relief. The fountain syringe with the small tip may be used for this purpose. The bag should be held just high enough to give a gentle flow, and the irrigation should be continuous for some minutes. Ear drops of laudanum, cocaine, sweet oil and camphor have no other than a moral effect on patient and attendants. If the patient be seen at the *beginning* of the disease and has severe pain which is not relieved by the above-named measures, it is justifiable and even wise to grant relief by giving a hypodermatic injection of morphin sulphat, not more than gr. one-quarter, not to be repeated. At no other period of the disease should the physician allow himself to administer this drug for fear of masking important symptoms. By such management, simple cases of this disease may be cut short.

In those cases in which the pain, congestion and temperature persist in spite of treatment, the physician should delay not longer than twenty-four hours before making a free incision in the drumhead. The line of incision should extend along the posterior border of the membrane from a point just below the stapes. A paracentesis or puncture of the drum, as formerly taught, is not sufficient. The incision should be from a quarter to a third of an inch in length. Previous to making the incision the external auditory canal should be disinfected as thoroughly as possible by swabbing out with a full strength peroxid of hydrogen solution followed by a 1-3000 bichlorid solution. I then swab out the canal with a 12 per cent. carbolic glycerine solution. A Graefe cataract knife, or slender bistoury, may be used to make the incision, the blade being wrapped with absorbent cotton to within a quarter of an inch of the point to protect the walls of the canal in case of sudden movement on the part of the patient. In children it is best to bring them slightly under the anæsthetic effects of chloroform before attempting to make the incision. With those who can co-operate with the physician, I believe it better to use no anæsthetic other than the carbolic glycerine solution which serves the double purpose of slight local anæsthesia and disinfection.

No discharge other than blood may appear for several hours or there may be a copious discharge of serum which later becomes purulent. The incision and local depletion usually give quick relief from pain. Two lines of treatment are now open to the physician. If the patient is to be under the care of a thoroughly competent nurse who can intelligently use the head mirror and speculum, then narrow strips of aseptic gauze should be passed into the canal to the drum. These should be removed as often as every half hour and fresh strips inserted with strict regard to asepsis. The object of any treatment is to promote the drainage from the tympanic cavity. The line of treatment just detailed is applicable to a few cases only, but in my experience it has given excellent results. The discharge is stopped and healing promoted sooner than with other management. Unless, however, the nurse is well trained in the use of the mirror, speculum and ear forceps, the following plan should be adopted. The discharge should be encouraged by gently syringing the ear with a warm 1-3000 bichlorid solution. This should be done as often as every hour or two according to the amount and character of the discharge. If the discharge is thick and stringy a few drops of peroxid of hydrogen will facilitate the thorough cleansing of the canal. In those cases in which the discharge is already established and in which the perforation in the drum is small, if the physician has reason to believe the drainage is not sufficient, the perforation should be enlarged. As the acute symptoms subside and a lessening in the amount of the discharge appears, the intervals betwen the cleansing should be lengthened until only two or three douchings in the twenty-four hours are necessary to keep the canal free. At this stage after each syringing, the canal should be thoroughly dried out with cotton on an applicator and powdered boric acid insufflated. Or, a few drops of such astringents as one to two per cent. solutions of zinc or copper sulphat may be dropped into the ear after each cleansing. Unless complications occur, the discharge will cease under treatment in from a few days to two or three weeks. When the perforation has closed the patient should be directed to wear a bit of cotton in the ear for a little time, especially during cold or windy weather. The deafness should be treated several times a week by inflations of the middle ear to establish the patency of the eustachian tube, and gentle pneumatic massage of the drum to break up any adhesions that may be forming. The intervals between such treatments should be gradually lengthened until the hearing is entirely restored, and then all treatment stopped. While it is undoubtedly true that a few of these cases, even when carefully handled, develop deafness and a chronic discharge, we will not outline the treatment of this condition which would lead us far beyond the limits of our subject and should be discussed under the title of Chronic Purulent Otitis Media.

The foregoing treatment is outlined for uncomplicated cases of acute purulent otitis media and does not take into account an extension of the inflammatory process to the pneumatic cells of the mastoid, or go a step farther to possible involvement of the lateral sinus with the formation of a septic thrombus. Nor does it anticipate such rapid destruction of bone as sometimes occurs with erosion of the thin plate of bone between the tympanic cavity and dura with the development of epidural or cerebral abscess or even a fatal meningitis. How shall we recognize mastoid involvement, and how shall we manage this development with the possibility in mind of even more serious complications?

The most prominent indications of extension of the inflammation to the mastoid cells are pain in the mastoid bone, radiating in different directions, and pain and tenderness on percussion or when pressure is made on the bone. The pain on pressure is usually limited to the area just over the antrum and below to the tip of the mastoid process. Authorities state that in a few tubercular cases pain may be slight. These cases are unusual and I have had no experience with them. A most important sign is swelling of the upper and posterior quadrant of the drum and of the adjacent tissues of the external auditory canal. There will always be fever, very slight in some cases, perhaps, varying from 99° to 105° F. In adults the temperature will be frequently below 100° F., while in children a higher register may be expected.

Any one can diagnose mastoiditis with the appearance of redness and œdema over the bone, and some surgeons have been known to wait until fluctuation has appeared before resorting to operative relief. However, the careful physician will recognize the signs of mastoiditis before such destruction of bone occurs as to allow of surface symptoms. To wait for these is to endanger the patient's life. It is to expose him to the dangers of sinus involvement, epidural or cerebral abscess and meningitis. In the course of an acute purulent otitis media, when the first symptoms of mastoid involvement appear, viz., pain in the mastoid, and pain on pressure over the mastoid antrum and tip, slight bulging of the upper and posterior quadrant of the drum and adjacent walls of the external auditory canal; with the advent of these symptoms our measures for relief should be promptly applied.

If the discharge is scanty or the drum has not yet ruptured, our first step should be to make a free incision as described earlier in this paper. From four to six leeches should be immediately applied over the mastoid from antrum to tip, and as soon as they have filled and been removed, ice should be applied to the mastoid to remain continuously for not more than forty-eight hours. The ice may be applied by means of an aural ice bag snugly adjusted to the mastoid and changed as frequently as is necessary to get the effects of continuous cold. The ice poultice may be used, but best of all methods of applying cold in these cases is the use of the Leiter coil. This consists of tubing applied to a malleable plate which can be readily moulded to fit any mastoid process. Ice water passes through this coil by the siphon principle, the flow being continuous without disturbing the patient. Where the Leiter coil is to be had its use will give the best results. However, the ice bag or poultice if changed quickly and frequently enough, will prove very satisfactory. By these measures in many cases the pain may be relieved, and if the inflammation be not too severe or well advanced, the attack may be aborted.

In other cases, however, especially those occurring as sequelæ of the exanthemata, influenza and diphtheria, this treatment is not successful and should not be prolonged as the application of cold may mask the true conditions. And right here I want to protest vigorously against the use of morphine in this condition. Its use is pernicious and lulls the physician and patient into a sense of security that may be rudely dispelled by signs of danger that come too late to allow of any measures being taken that will prevent a fatal issue. Another practice which is all too prevalent and which should be severely condemned is the application behind the ear of iodin or other vesicants. This vicious practice so inflames the soft tissues over the bone that to make a diagnosis of mastoiditis is rendered much more difficult.

If the inflammatory symptoms do not subside rapidly as the result of the above mentioned treatment, the mastoid cells should be promptly opened to avoid the rapid destruction of bone with possible involvement of sinus or dura. It is true that some cases of simple mastoiditis recover when left to nature's care. On the other hand it is also true that many lives have been sacrificed that would have been saved had operation been performed early in the disease. The operation, if undertaken by one familiar with mastoid work is a procedure of comparative safety, and should be undertaken at once if there is a reasonable doubt as to the condition of the mastoid cells.

The decision for or against an operation on the mastoid is an important one, and at the risk of repetition, I again enumerate the symptoms, the presence of which should be the indications for operative interference. When, after at least forty-eight hours of the antiphlogistic treatment described above, the pain, temperature and discharge persist, and where there is bulging of the upper posterior quadrant of the drum with swelling of the adjacent tissues of the canal, especially if there be considerable deafness and pain on pressure over the mastoid, an immediate operation should be undertaken.

If this paper shall succeed in renewing the acquaintance of those who read it, with the importance of the disease discussed, and impress on them the necessity of the careful management of these cases, it will accomplish the aim of the writer.

The histories of a few cases taken from my own practice may serve to illustrate some of the points emphasized in this paper:

Case I. N. K. 11, female. I was called to see this patient by the family physician during the first days of an attack of scarlet fever, on account of a swelling which had appeared above the left eye lid. This later proved to be an abscess, which was opened and gave no further trouble. At this time I suggested that irrigation of the nasal cavities be adopted as part of the routine treatment, with the idea of preventing possible ear complications. This was carried out during the disease, which went on to recovery with no ear involvement.

Case II. H. B. 43, female. This patient had remained indoors for several days with a hard cold, when she was taken during the night with severe pain in the left ear. She consulted me in my office the following morning. The ear drum was an angry red, and she was suffering great pain. She heard the tick of my watch held at one foot from her ear. After thoroughly cleansing the external auditory canal and applying the carbolic glycerine solution I made a free incision in the drum. A large amount of serum came away during the next hour, and she left the office almost free from pain. She was directed to syringe the ear every three hours with a hot 1-3000 bichlorid solution, and an oily menthol spray was prescribed for nasal inhalation. She had no further pain. The discharge became purulent, but had entirely ceased in a week from the time of incision. The drum healed perfectly. She was seen at my office several times for inflation of the middle ear and gentle pneumatic massage of the drum. Her hearing became normal and she was discharged cured.

Case III. F. G. 25, male. This patient had suffered for several years with a copious purulent discharge from the nose, due no doubt to disease of one or more of the nasal accessory cavities. He came to my office complaining of pain in the right ear, which had come on during the previous night. He stated that a little more than a year before he had been confined to his bed for two months with an abscess in the same ear, which did not break until several weeks after the pain appeared. On examination I found the drum intact and somewhat congested, but not markedly so. His nasal fossæ were thoroughly cleansed, and he was directed to irrigate the nose and naso-pharynx as in Case I. and to resort to irrigation of the ear with hot water for relief of the pain. He returned the following morning after an uncomfortable night. The drum was thoroughly reddened and had lost its pearly appearance. After cleansing the canal, as in Case II, the drum was incised, giving relief from the pain before he left the office. The flow of pus was copious. Syringing of the ear with hot bichlorid solution was ordered, and in ten days' time the discharge had ceased. The drum healed and after a number of office treatments, which restored his hearing, he was discharged cured.

The following histories evidence the conditions that may develop as complications of acute purulent otitis media. Each case teaches its own lesson.

Case IV. J. J. 3, male. This little patient, a healthy boy, after exposure during a stormy winter's day, developed a cold and bronchitis. Earache and discharge from the ear followed in a few hours. The family physician asked me to see the case with him. The child's temperature was 101° F., with pulse of good character. The discharge was copious from a good-sized perforation in the drum. Bichlorid douches were ordered for the ear every three hours. I saw the case a day or two later, and apparently everything was progressing favorably. Two weeks passed by and I had nearly forgotten the case, when I was again called to see the child. There was redness and œdema over the mastoid, and the discharge was profuse. The temperature was 103° F., and the child was drowsy and apathetic. Immediate operation at Noble Hospital revealed extensive destruction of the mastoid bone. The bony wall of the sinus was eroded and granulation tissue was present on the vessel's wall. In removing the carious bone, an area of the dura was exposed as large as a three-cent piece. The carious bone was thoroughly removed, the cavity packed with iodoform gauze and the usual dressing applied. Two days after the operation the child developed the subnormal temperature of 96.5° F., which continued for twenty-four hours. Thrombosis of the sinus was feared. The packing was removed and the wound opened. All appeared in good condition. The dressing was reapplied and the child kept in hot blankets until reaction occurred. The recovery from this time on was uneventful.

Case V. R. A. 7, male. I was called to see this case by the family physician. The boy was ill with scarlet fever, and there had been discharge from the ear for some days. The boy complained of a good deal of pain in the mastoid, which was very tender on pressure. The discharge was free from a sizable perforation in the drum. Immediate operation was recommended, but, owing to some complications that developed in regard to transferring the patient to the hospital, it was delayed until the following day, when the boy was admitted to the Keep Memorial building, the department of Noble Hospital for contagious diseases. During the night slight swelling had developed over the mastoid. A gush of pus, as the knife made the initial incision to the bone, showed the presence of a subperiosteal abscess, and on exposure of the bone a small carious opening was revealed. Great destruction of the bone had taken place. In removing the pus and debris the sinus and dura were exposed to a considerable extent, and at the completion of the operation an extensive cavity presented. This was packed and the usual dressing applied. The boy made a slow but sure recovery.

Case VI. N. N. 44, male. This patient had an attack of influenza, and soon developed pain in the right ear with discharge. These symptoms continued until finally two weeks after the discharge made its first appearance, severe pain developed in the mastoid. I now saw the case for the first time. The patient's temperature was 102° F., with pulse of good character. The man was worn out with suffering and in an exceedingly weakened condition. There was marked tenderness over the mastoid antrum, but no redness or swelling. No perforation in the drum could be made out, although there had been a discharge of pus for more than two weeks. There was swelling of the upper posterior part of the drum and adjacent tissues of the canal. A free incision was made in the drum, and the ear syringed with warm bichlorid solution every hour. The patient's family was advised that an operation would probably have to be undertaken. The following morning saw no improvement in the man's condition. He had passed a restless night and was haggard with suffering. He was removed to Noble Hospital and immediate operation performed. The mastoid cells were filled with pus and broken-down bone tissue. The sinus was not exposed, but in removing the carious bone a small area of the dura was laid bare. The cavity was packed and the usual mastoid dressing applied. In two days' time the temperature fell to normal and at no time since the operation has the patient complained of pain. He returned to his home in three weeks from the time of his operation and made an uneventful recovery.

ASSOCIATED CASES OF STAPHYLOCOCCUS PYOGENES AUREUS INFECTION.

Read before the Surgical Section of the Rochester Academy of Medicine, February, 10, 1904.

By GEORGE E. BEILBY, M. D.,
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The Staphylococcus Pyogenes Aureus, or " Golden Staphylococcus " of Rosenbach, is a highly virulent and dangerous organism, generally present upon the skin, though in smaller numbers than the staphylococcus pyogenes albus, which it closely resembles as to its morphology and vegetative characteristics. The staphylococcus aureus, however, is the more common organism of the suppurative diseases and when virulent is a dangerous and often deadly organism. Besides being present upon the skin, this organism is found in the nose, mouth. eyes and ears of man, and is nearly always present beneath the finger-nails and sometimes occurs in the feces, especially in children.

Its pathogeny among animals is decided, and when introduced subcutaneously, abscesses almost invariably follow. In man it is almost equally pathogenic, though according to McFarland, a fatal outcome is much more rare. It enters the system through scratches, punctures, or abrasions, generally causing abscesses when virulent.

The pigment-producing power of this organism, which gives the characteristic yellow pus, varies greatly in different cultures, and may appear only after repeated transplantation. It is usually supposed that its power of pigment production and virulence go hand in hand, but in the cases I have to report this was not true, as will be seen from the fact that the organism, while extremely virulent, developed color only after continued cultivation.

Infections with this organism, both of superficial and deep structures, while very common, I think are rarely met with causing such varied and serious lesions and occurring in such an epidemic nature.

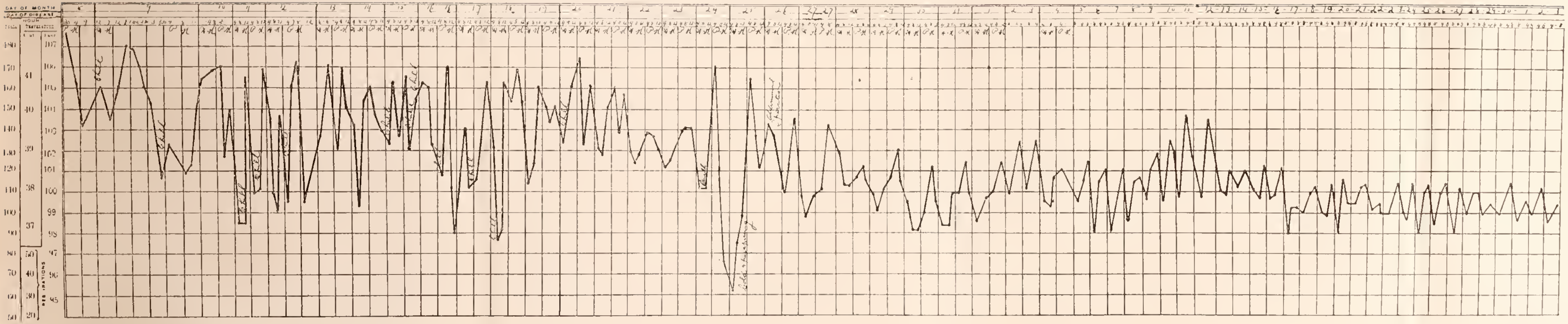
The cases I have to report occurred at the State Industrial School in Rochester, during the months of September, October and November, 1903. They are reported in the order in which they occurred:

Case I.—G. S., male, æt. 18, native of United States. For the past year an inmate of the State Industrial School. Has previously always been strong and well. Only illness he remembers having was measles, when seven years of age. Father, he says, died of "painter's grip," and one sister of "spinal disease." Two brothers dead, cause of their death unknown. Says that about ten days previous to the onset of present illness he had a boil on back of neck. Had entirely healed on entering hospital, though a slight scar remained. No other skin lesion or abrasion determined. Present illness began on afternoon of September 4th, with pain referred to right knee joint. He continued with his work during the afternoon and slept fairly well that night. In the morning the leg was so lame and painful that he walked only with great difficulty. Was admitted to hospital about nine A. M. Examination revealed only very slight swelling about lower third of thigh and knee joint, but marked tenderness on palpation. Temperature at one P. M. was 104.2° F. Symptoms at this time seemed to point toward the case being one of acute articular rheumatism and therefore antirheumatic treatment was given and pushed to the point of tolerance, but there was no amelioration of the symptoms; on the other hand there now appeared on the third day of illness a uniform

To Illustrate Dr. Beilby's Article on "Associated Cases of Staphylococcus Pyogenes Aureus Infection."

CASE II.

Albany Medical Annals, September, 1904.



swelling and redness of lower portion of thigh, intensely painful, and showing evidence of deep seated abscess. On the following day, September 9th, ether was administered and the thigh opened by an incision in its outer aspect three inches above the external condyle. The incision was extended downward to the femur before the abscess was found. A large amount of pus was evacuated which was found to have originated from a periosteal inflammation. The periosteum was denuded over a large area. A counter-opening was made and through-and-through drainage established. Large antiseptic irrigations were used and the wound kept packed with iodoform gauze. Following the operation the temperature, which had ranged from 103° to 104° dropped to 101°, but went back again two days later, which, with local symptoms, indicated an extension of the suppurative process. The knee-joint, which up to this time had not seemed to be involved in the suppuration, now became swollen and tense, so that on September 16th ether was again administered and the joint cavity opened and drainage introduced under the patella; the primary incisions were also enlarged that the drainage might be more free. For three or four days following this operation there was again a drop in the temperature and some improvement in the general condition of the patient, but the suppurative process continued to extend, all the joint tissues were involved, and it became clearly evident that the limb could not be saved. After consultation with Dr. H. T. Williams an amputation was decided upon and the consent of parents obtained. Patient was now in a very septic condition, emaciated, pulse 120 to 130 and of very poor quality. Urine showed albumen but no casts. Prognosis was thus bad. On October 2nd a rather high thigh amputation was done which seemed to remove thoroughly all the diseased tissues. The periosteum, however, was considerably thickened and stripped up more freely than normal at the point of amputation. Flaps were closed with catgut and a few strands of catgut introduced at each angle of the wound for drainage. Patient's condition during the operation and for several hours after was extremely bad, but he rallied well after several large saline infusions. He had a fairly good night and his temperature the following morning was 97.6°, pulse 120. Only once following was the temperature over 101°. Union of flaps obtained except in center of incision over end of femur. Here a sinus remains and a slight discharge of pus continues. Up to present date, December 22nd, this sinus has not closed and the probe reveals the presence of necrotic bone. I failed to take a culture at the time of amputation, but one was made a few weeks later from this discharging sinus and submitted to Dr. Pearce, of the Bender Laboratory at Albany, and he reports as follows: "The result of the examination of the cultures in the case of G. S., amputation of thigh, shows the presence of the staphylococcus pyogenes aureus and a few colonies of an unidentified bacillus which probably has no relation to the lesion."

Case II.—W. R. W., male, æt. 14, native of United States. Admitted to school October 30, 1902. Had typhoid fever two years ago, otherwise always well. Father died of cancer. Mother and five brothers living and well.

Present Illness: Entered hospital October 4, 1903, with what was apparently a slight infection at base of third finger, right hand, and a moderate lymphangitis extending about half way up forearm. The base of the nail was removed and pus was evacuated and an antiseptic dressing applied. The lymphangitis subsided, but the suppurative process about nail continued and by the fourth day after admission had involved all the tissues about nail. At three P. M. of this day the patient complained of a severe headache, and vomited a large amount of undigested food and seemed very ill. The temperature was taken and found to be 107.6° F. by mouth. As the infection of the finger nail was the only lesion determined to account for this condition, the finger was again thoroughly opened up, all the suppurating tissue removed and a hot, bichloride dressing applied. On the morning of the following day the patient had a distinct chill and the temperature rose to 105° F. In the afternoon another chill occurred with a temperature of 107° following. This rapidly dropped to 100.6° only to be followed in a few hours by another chill and temperature reaching 106°. This condition continued for fourteen days, during which time there were fifteen distinct chills, twice temperature reaching 107° or over, and eight times 106°, only four times did it reach or fall below normal. (See chart)[1]. The chills occurred without any regularity; during one period of twenty-four hours he had three distinct chills, each followed with a high temperature, then excessive perspiration and prostration. Repeated examinations of the blood were made for the plasmodium malariæ, each time with negative results. Large doses of quinine sulphate were given (forty-eight grains in twenty-four hours) without the least perceptible effect on chills or temperature. On October 13th, the ninth day after admission, as the finger still continued to suppurate and the infection had extended upward into joint, the distal and head of the middle phalanx were removed and cultures taken. These, together with the portion of finger removed, were forwarded to the Bender Laboratory for examination. On October 29th, Dr. Pearce reports as follows:

"The bacteriological examination of the cultures from W. R. W. shows the pus to contain only the staphylococcus albus. This is an unusual finding for the very septic condition you describe. The cultures of the organism have been under daily observation for the past two weeks and the organism showed no tendency to develop color. We are about to make experimental inoculations, in order to determine its virulence. The histological examination shows extensive suppuration involving sub-epithelial tissues, generally." On November 2nd, a second report on these cultures was received from the laboratory, in which Dr. Pearce stated that as a result of transplanting on various media the organism had during the last few days developed color and that he therefore changed his diagnosis to staphylococcus pyrogenes aureus. On the day following the removal of the portion of the finger, blood cultures were made from the left median basilic vein and were reported sterile. Leucocyte count at the time showed 40,000, increase mainly in polymorphonuclears. From this time until the 26th of October the boy had no more chills, only occasional chilly sensations, but temperature continued of remittent character. On the 24th rather severe abdominal symptoms developed: pain, tenderness referred more to the left hypochondriac region, tympanites and rigidity of abdominal muscles. The temperature, which for two days had not risen above 103°, suddenly went to 106° at four P. M., and in the next twelve hours dropped eleven degrees, being 95° at four A. M., returning again to 106° in the afternoon. The symptoms seemed surely to warrant an exploratory laparotomy which I performed on the 26th. Abdominal viscera normal. Parietal and visceral peritoneum red and injected. Considerable serous exudate in abdominal cavity. No pus foci found. The wound was closed without drainage and primary union obtained. For the succeeding five days patient was given daily an infusion of saline 600 cubic centimetres, whiskey, fifteen cubic centimetres, and ten grains of bisulphate of quinine hypodermatically. Following this operation there was decided improvement in the condition. The temperature still continued of a remittent nature, but gradually subsided after eight weeks of fever, reaching normal to remain there December 1st.

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[1] The temperature chart is submitted in this case as showing more clearly the unusual oscillations of temperature

Patient is very slow in regaining normal weight and strength.

Case III.—W. W., male æt. 15, eighteen months in school. No history of previous illness. Does not remember having had a boil or skin infection of any sort. Family history negative.

Entered hospital on the evening of October 30th, complaining severely of pain in left thigh and knee. No perceptible swelling until two days later, when there presented signs of a deeply seated abscess. The middle finger of left hand also became swollen and red. The leucocyte count at this time, 10,370. Under an anaesthetic, thigh and finger were opened with free incisions, revealing in each location extensive periostitis and suppuration. Cultures were made at time of operation. Patient now developed symptoms of a profound septicæmia. A soft blowing murmur could be heard at the apex, synchronous with the first sound of the heart. On November 4th, the fifth day of illness, 20 centimetres of antistreptococcic serum were injected. This dose was repeated in twelve hours. No improvement followed. (This was previous to receiving laboratory report on culture.) During the next three days there appeared lesions similar to the ones described in the middle toe of right foot, great toe of left foot, and the right elbow joint and a general lymphatic infection was present. The lymphatic glands of neck and upper thorax were breaking down and suppurating freely. On the afternoon of November 8th one litre of 1-5000 formaldehyde in normal saline solution was injected into the median basilic vein. No apparent improvement followed except a temporary strengthening of the pulse. No drop in temperature. This transfusion was repeated in thirty-six hours, again with no effect. On November 10th the suppurating finger of left hand and toe of right foot were amputated. These were also submitted to Bender Laboratory. The case was seen by Dr. Ely in consultation, who could suggest nothing and gave a bad prognosis. The patient grew gradually worse during the next twenty-four hours, temperature 105° to 106.5°, pulse 140 to 150. Constantly delirious. Died at noon November 11th. Rectal temperature one-half hour after death, 108° F.

Autopsy not permitted. Blood culture was made from the femoral artery, four hours after death. On this and the other specimens Dr. Pearce reports as follows:

"(1) The finger which reached this laboratory on November 8th, labeled 'W. W.,' shows an extensive suppurating process involving all the soft tissues and periosteum.

"(2) The cultures received on November 6th, labeled 'W. W.,' after examination give the following results: (*a*) Three cultures from thigh and two from foot show the pure cultures of staphylococcus pyogenes aureus. (*b*) Cultures from finger of left hand and right middle toe, etc., show the same organism. (*c*) Cultures of blood from femoral artery, four hours after death, were sterile. The organisms found in this case show characteristics very similar to those found previously in pus from W. R.. W., that is, they were as pale in color, resembling the staphylococcus pyogenes albus, developing color only after continued transplantation."

CASE IV.—H. W., æt. 17, native of United States. Physical condition on admission to school four months ago seemed excellent. Had measles three years ago, whooping cough when a small child. No other severe illness until the onset of present trouble, but says has always been subject to hard "colds." Family history negative.

This boy was admitted to hospital November 20th, with a temperature of 102.5°, headache, general malaise and a very troublesome cough. Said that he had been suffering from a hard "cold" for about a week. Also complained of pain or soreness across chest. Physical examination revealed an abundance of moist rales pretty well distributed over lung area. Slightly more pronounced at apex. No consolidation. Cough was so severe that patient obtained but little sleep. Sputum excessive. Guaiacol and carbonate of creosote were each tried in increasing doses, heroin to control cough. Patient rapidly grew worse. In three weeks lost fifteen pounds in weight. The cough did not improve, sputum becoming more excessive. Repeated examinations were made of sputum for tubercle bacilli with negative results. A specimen was sent to the Bender Laboratory and Dr. Winne, the assistant director, also was unable to find the tubercle bacilli.

Patient now often complained of severe pain in right chest. Examination showed on percussion, impaired resonance, upper and middle portion right lung; bronchial breathing over this area, moist and crepitant rales; tendency to consolidation in areas. Cultures from sputum were made on December 15th and sent to the Bender Laboratory. In the absence of Dr. Pearce, Dr. Winne reported as follows:

"The examination of sputum showed abundant leucocytes, (pus cells) and many organisms of varying morphology, cocci and bacilli. Cultures showed staphylococcus aureus, staphylococcus albus and pneumococci."

From this time on until the present, no drugs were given except occasional small doses of heroin and inhalations of creosote vapor for laryngitis which had become very troublesome. An egg every hour, twenty-four a day, was prescribed and taken for a period of twelve days, then reduced to twelve a day and continued for two weeks longer, with the result of an improvement in all the symptoms and an increase in weight of six pounds.

The case now, January 16th, seems to be progressing favorably. He has still some cough, quite severe at times, and some expectoration. The temperature remains normal. He is slowly regaining weight and strength. Physical examination reveals only the evidence of a slight bronchitis remaining.

The special points of interest in this series of cases which are worthy of note are:

The virulence of the attacking organism together with its feeble pigment-producing power; the close association of the cases, occurring in the same institution, though in boys not residing in the same building or coming in actual contact with one another; the variety of the infectious processes and of tissues attacked; in cases I and III the inability to determine the manner or source of infection.

Clinical and Pathological Notes

A Case of Acute Abscess of the Anterior Mediastinum. By Arthur T. Laird, M. D.

A. K. O., age 27, was admitted to the Albany County Hospital under the care of Dr. W. G. Lewi, October 28, 1903. He had been a soldier in the Philippine Islands during 1900 and while there had malaria, dysentery, gonorrhea, chancroid and a suppurating bubo. He was sent back to the United States on account of sickness. For the two years previous to his admission he had been in good health and had worked as a hostler in New Haven and Worcester. For a few days before coming to the hospital he had been working in Ravena gathering apples and suffered a fall from a tree which gave him a thorough jarring, but did not cause any evident local injury. On admission he complained of severe pains in the left side of the head, in the neck and in the chest. The face was flushed. The left arm could not be lifted on account of pain in the shoulder. The left sterno-clavicular joint was tender and the left sterno-mastoid muscle was contracted. Examination of the heart was negative at this time. Percussion of the chest was negative. On auscultation, expiration was found to be prolonged and harsh on listening over the right side of the chest anteriorly. Squeaking and groaning râles were also heard in this region. The temperature was 103°, pulse 132, respirations

36 per minute. The urine was negative except for the presence of pus cells. The white blood cell count was 16,000. Seventy-five per cent. of the white cells were of the polynuclear variety.

October 30th. The patient complained of sore throat and of difficulty in swallowing. The tonsils were not enlarged nor apparently inflamed. A culture showed no diphtheria bacilli.

October 31st. The region about the sterno-clavicular joint was swollen, reddened and œdematous. The pulse was irregular.

November 2d. The abscess was opened by Dr. Arthur W. Elting. The patient was under ether. The incision was made over the swelling and just above the suprasternal notch. About a pint of pus was evacuated. The abscess was found to occupy the anterior mediastinum. No carious bone could be detected. The sterno-clavicular joint was not affected. The pus was found, on examination by Dr. C. K. Winne, Jr., to contain the staphylococcus pyogenes aureus in pure culture. The temperature before the operation was 102°. The following day it did not go above 99°, and the next day it was normal. The symptoms outlined above rapidly disappeared. Further treatment consisted in irrigating the abscess cavity daily and allowing healing to take place from the bottom. The patient left the hospital about January 1, 1904, apparently perfectly well.

Abscess of the mediastinum is known to have occurred as long ago as the time of Galen, who recorded a case following a wound. Hare[1] has collected and tabulated the histories of 115 cases.

Cases of mediastinal abscess as a rule belong to one of three classes:[2] those due to the extension of inflammation from neighboring organs, those occurring in the course of infectious diseases and those due to traumatism. The abscess may be acute or chronic. The chronic abscesses are often tubercular and may be due to tuberculosis of the vertebræ or of the bronchial lymph glands.

The cases due to extension of inflammation from neighboring tissues include those in which pus finds its way into the mediastinum from the neck, or the abscess may follow inflammation of the œsophagus due to the presence of foreign bodies. It may also follow disease of the cervical vertebræ or retro-pharyngeal abscess. Occasionally pus finds its way into the mediastinum from the abdomen, *e. g.,* as a result of abscess of the liver.

Among the infectious diseases in which cases of abscess of the mediastinum have developed and have been recorded are erysipelas, tuberculosis, pneumonia, small-pox, acute articular rheumatism. A case following syphilis is cited by Hare.

Trauma is a more unusual cause. The injury may be a penetrating wound, as a bayonet or bullet wound, or the injury may be external, a blow on the chest or a serious fall. The latter was the cause assigned in three of the cases cited by Hare. The production of an area of diminished resistance is probably the important factor in such cases.

The symptoms of acute abscess of the mediastinum include the results of pressure on the respiratory tract or on blood vessels, symptoms which are common to all forms of mediastinal disease. In acute abscess the ordinary symptoms of inflammation are also present. This is severe pain, found, as a rule, in the area involved. When, however, the abscess is in the posterior mediastinum and presses on the nerves near their exit from the spinal column, the pain may be at the peripheral endings of the nerves in the front of the chest and lead one to suppose the trouble to be in the anterior mediastinum. Fever is present and is an important symptom in making the diagnosis. Wittauer[3] thinks that intermittent fever may be a symptom of malignant disease of the mediastinum. Inspection of the chest may be entirely negative. On the other hand a localized prominence may be seen or the pointing of the abscess at the edge of the sternum may be very evident. Percussion may reveal dullness, but if the abscess lies principally behind the sternum the dullness may not be definite. An important differential sign when present and one that has been emphasized by Daude[1] and Von Hacker[4], is the presence of dullness when the patient sits up which partially disappears when he lies down. Fluctuation or œdema at the edge of the sternum may be recognized by palpation. On auscultation wheezing respiration and râles may be heard, as in this case, due to a decrease in the calibre of the respiratory tubes from pressure. Difficulty in swallowing is not so common in abscess as in solid tumors of the mediastinum, but was present in this case. Irregular heart action and cough may be present, due to irritation of the vagi.

The diagnosis is less difficult in acute cases, especially those in the anterior mediastinum where the pus comes to the surface, than in chronic abscesses, which must be differentiated from solid growths, from tuberculosis and especially from aneurism.

The prognosis is always grave. In favorable cases the pus finds its way to the surface, where it may escape spontaneously or be evacuated by the surgeon. In the middle and posterior mediastinum this favorable termination is much less likely to be reached than in the anterior mediastinum. In the former situations the abscess may open into the œsophagus, trachea, pleura, pericardium or even into the aorta. The pus may find its way into the abdomen. In abscess of the anterior space the periosteum may become inflamed and caries of that bone result. Occasionally the entire sternum breaks down, as in a case shown by Harvey to King Charles the Second[1].

The treatment of acute abscess of the anterior mediastinum should consist in the removal of the pus by operative means whenever possible.

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Editorial

> But an offended patient—I mean a thoroughly insulted one—is the finest advertisement in the world. If it is a woman, she runs clacking about among her friends until your name becomes a household word, and they all pretend to sympathize with her, and agree among themselves that you must be a remarkably discerning man. * * * * It's human nature, my boy, and you can't alter it. Eh! What? You make yourself cheap and you become cheap. You put a high price on yourself and they rate you at that price.
>
> A. CONAN DOYLE.
>
> *The Stark-Monro Letters.*

As to Newspaper Notoriety

An anxious inquirer asks of the *Journal of the American Medical Association* if the insertion of the following card in a newspaper would be unethical:

OFFICE HOURS: 8 to 10 A. M.; 1 to 3 P. M.; 6:30 to 7:30 P. M.
JOHN R. DOE,
Physician and Surgeon,
Corner of Vine and Cherry Streets, Corn, Ill.
Special attention given to Microscopic and Chemical Analysis.

The *Journal* states that "publishing a simple professional card, giving name, address and office hours, is permissible, though in most parts of the country it is avoided as a matter of taste. Specifically, the card submitted appears rather pointless. The general public does not go to a physician for 'microscopic and chemical analysis!' * * * If a physician advertises in the way mentioned with the idea of impressing the public with his superior methods of diagnosis, etc., the matter becomes objectionable."

There are more ways of newspaper advertising than the publication of a professional card, as physicians well know. In this age of "interviews," there is little difficulty for any physician to utilize the columns of the daily press for almost any announcement he chooses to make, whether upon professional or secular matters; and too often these interviews bear the ear-marks of personal exploitation rather than of a desire to serve the community. And whatever may be the cash value of this exhibition before the public eye, the ultimate return is surely not adequate. In the words of the *Journal of the American Medical Association,* "The man who thus parades his attainments may not in some places be ostracized professionally, but he certainly in most localities would be running very great risk of attracting strong professional disfavor."

Our older readers may recall a controversy on this subject which occupied the attention of the Medical Society of the County of Albany in 1870. Exception was taken by the Society to newspaper laudation of the faculty of the Albany Medical College, which appeared in a relatively innocent article commendatory of the institution. Its teachers were described in complimentary terms. They were summoned before a committee of the Society, required to explain, and the following resolutions, in force since 1864, were cited:

> "*Resolved,* That in the opinion of this Society, it is impossible to define the limits of advertising 'Medical Specialties,' either in medical or other journals.
>
> "*Resolved,* That advertisements indicating locality and residence, are the utmost limits of self-announcement consistent with professional dignity, and that all reference to special branches of medical practice, as extra inducements to patronage, should be deemed violations of the Code of Medical Ethics.
>
> "*Resolved,* That hereafter any medical practitioner so offending, shall be deemed disqualified to or for membership of this Society, and if already a delegate to or a member thereof, shall be deemed a fit subject for discipline. Adopted."

In 1891 the subject is again brought into notice by a discussion in the Medical Society of the County of New York, commented upon by an Albany newspaper. The ANNALS, under the editorial control at that time of Dr. Willis G. Macdonald, expressed an opinion in no uncertain tone: "After a careful study of the subject, the ANNALS is unable to see how humanity has been benefited or the medical profession has maintained its dignity by popular medical newspaper interviews or essays. We are very sure the unscrupulous in the profession seize upon it as a ready means of notoriety and pecuniary gain."

In his Vice-President's address to the County Medical Society in 1901, Dr. Andrew MacFarlane "approached with fear and trembling" the relations of the physician with the press, with a "deep conviction that something must be done." He embodied the suggestion that a representative committee upon the Press should be appointed by the president of the society, to which committee should be referred all medical questions of interest to the public.

This suggestion is a good one. There is little doubt in the minds of the profession at large and of the more intelligent members of the community that newspaper adulation is inspired and is personal, rather than disinterested. Times and customs change, and there is little chance now that overstepping of the bounds of professional reticence, unless a flagrant offense, would receive the censure or even the attention of the medical organization. But one important factor in all that goes to the making of the ideal physician, and has to do with the esteem in which he is held by his colleagues, is the observation, not only of the letter, but of the spirit of this law, which differentiates medicine from politics.

Dr. William Osler

The departure of Dr. Osler from the United States to accept the Regius Professorship of Medicine in the University of Oxford, will send a pang of regret through the medical profession of this country. The loss of his unique personality is one that cannot be replaced. He has been a leader in the interpretation and application of scientific medicine to the benefit of the patient, and in bridging the chasm between the laboratory and the bedside. His book on practice is familiar to every physician in this country, and there are few with the courage to deny it a place in the library. He has used his opportunities as a teacher in our leading medical school to impress upon his students not only the highest conception of their art, but personal ideals of excellence beyond the mere performance of duty. And the greater his own renown the more congenial, affable and approachable has he become.

Albany physicians will long hold him in affectionate remembrance. When sought for advice he has commended to us those of his own pupils, who, as young men, have contributed so materially to the medical progress of the last few years in our laboratories, clinics and lecture halls. His generosity has been shown in his contributions to the ANNALS. In the issue of June, 1899, was published his short and attractive address to the students of the college. In March of the same year the ANNALS was favored with his address in medicine to the Medical Society of the State of New York. Those who heard and read that brilliant summary of the Problem of Typhoid Fever in the United States cannot soon forget his masterly arraignment of local government for failure to adopt the preventive methods urged by our profession. "For fifty years the profession has uttered its solemn protests, as I do this day," was his peroration, "Mr. President, we have done more—*We have shown how the sacrifice may be avoided and the victims saved.*"

In the issue of January, 1901, the ANNALS published his address at the Semi-Centennial of the Troy Hospital, upon the "Influence of a Hospital Upon the Medical Profession of a Community," a clever comment upon the relations of physicians to each other and to their patients.

These incidents are not mentioned as important in the work of Dr. Osler, but as illustrating his catholicity. We have wondered how time and energy could be found for this scattering of benefits remote from his own immediate labors, and we have been one only of the many to profit by his generous impulses. Regret is tempered by the thought of the greater distinction awarded him. Albany sends with him the heartiest message of God speed.

Scientific Review

BEHRING'S THEORY OF THE ORIGIN AND SPREAD OF PULMONARY TUBERCULOSIS.

At the seventy-fifth annual Congress of German Naturalists and Physicians held at Cassel in the latter part of September, 1903, Behring read a paper in which he explained his views in regard to the origin of tuberculosis of the lungs. Since that time he has published articles on the same subject in several

German periodicals. His first paper at Cassel caused considerable stir and was the sensation of the congress. The discussion has since been continued in the medical journals and in the deliberations of various scientific bodies.

According to Behring's theory, infection with tuberculosis occurs, in most cases, only in early infancy, involves the lymphatic system and remains latent for months and years, giving rise to consumption in later adult life. The infection takes place from the alimentary tract; and he considers cow's milk fed to infants to be the principal source of the infection. Koch's ideas in regard to the existence of essential differences between the bacillus of bovine and that of human tuberculosis are therefore considered erroneous by Behring. The infection takes place in early infancy on account of the peculiar permeability which the mucosa of the intestines has at this period of life for bacteria and toxic substances and also on account of the absence of protective ferments which are present in the intestines of older individuals. Infection of the respiratory passages from bacilli in the air, the so-called "inhalation tuberculosis," is very exceptional if it occurs at all. Persons said to be "predisposed" to tuberculosis are really those who have already contracted the disease in early infancy. He does not believe in "predisposition" in the ordinary sense of the word. "Pulmonary tuberculosis is only the end of the consumptive's song." Hereditary transmission is in most cases post-genital, the disease being acquired by an infant kept in the same room with consumptive parents by getting the bacilli into his mouth. The best prophylactic measures against the spread of consumption consist in keeping infective material, especially infected cow's milk, from the child, and in feeding to it milk containing anti-bodies producing an immunity to tuberculosis. Behring thinks that the preparation of such milk on a large scale will soon be practicable. Cattle can be highly immunized by inoculation with bacilli of weakened virulence.

Reports of investigations and experiments by himself and others are brought forward by Behring in support of his assertions. The presence of permeability of the intestinal walls of young animals for different disease-producing substances was shown by the results of experiments on foals, calves and the smaller laboratory animals. Tuberculosis of the lungs was also produced in guinea-pigs under such conditions that the inspiration of tubercle bacilli into the lungs was excluded, *e. g.*, by infection of the tongue parenchyma, by feeding tubercle bacilli in milk, and even by inoculation of the uro-genital apparatus. In such experiments the bacilli are taken up at the primary point of entrance by the leucocytes and often get into the lymph stream without producing lesions of the mucous membrane. Some of the bacilli find lodgment in the submental and cervical glands, others may be carried to the bronchial glands, others by way of the intestines reach the omentum, diaphragm, liver, and the mesenteric and mediastinal glands. Eventually the lungs are affected. Bacilli getting into the blood stream may cause hematogenous infection, especially in the sub-pleural endings of the branches of the pulmonary artery. Mild infection produces changes in the smooth muscle of the walls of small vessels. More severe infection produces miliary tubercles about the small vessels. In still more serious infection, end arteries become plugged, coagulable exudate is poured out, surrounding tissues become necrotic and cessation takes place. The smooth muscle elements throughout the body have a large share in the reaction to tubercle bacilli in the blood. Months may elapse after the infection of animal before pulmonary lesions are produced.

Most of the writers discussing Behring's theories do not entirely agree with him. Parts of his papers are, however, approved. Few if any are ready to believe that the infection eventually producing pulmonary tuberculosis takes place only in infancy. Orth points out that Behring himself admits that infection may take place later in life if the intestinal mucosa is injured in any way, as, for example, in typhoid fever.

The possibility of lymph-gland tuberculosis in early childhood eventually resulting in pulmonary tuberculosis is conceded by Weigert, Westenhoeffer, and Orth, and probably would not be denied by others. Spengler considers tuberculosis in early infancy very rare. He thinks its presence should be demonstrated in large numbers of cases and some adequate explanation of the long period of latency given before Behring's views can be accepted.

Flügge does not think the milk given to bottle-fed infants an important factor in the spread of tuberculosis, as such children are usually fed on sterilized milk. Statistics in regard to places where children are almost exclusively nursed at the breast show a mortality rate from tuberculosis no lower than where artificial feeding with cow's milk is used. As pointed out by Spengler, if milk is the source of infection, the bacilli of bovine tuberculosis must be the organisms producing the disease and he contends that there are definite differences between the two species and between the lesions they produce. He states that local skin infection in the human subject with the bovine bacilli is not followed by lung tuberculosis.

Baginsky denies that the tuberculosis of infancy is an alimentary rather than an inhalation tuberculosis. Autopsies show that in practically all cases where infants die of tuberculosis the bronchial glands are found infected, while even the most careful search fails to reveal lesions in the intestines. Orth states that the real frequency of tuberculosis of the intestines in infancy is hard to determine as often there is no lesion where the bacilli pass through the intestinal walls.

The peculiar permeability of the intestinal walls on which Behring lays such stress is said by Flügge to be of little practical importance as it lasts only for a few weeks after birth and during this time the children are usually fed on sterilized milk if they do not nurse at the breast. Woestenhoeffer says that statistics indicate that although tuberculosis is rare in infants under three months of age, it is more common in later infancy and childhood and the lesions through which infection enters are injuries to the mucous membrane of the mouth caused by the cutting of teeth. His experiments with about 150 animals show that tuberculosis can spread to all parts of the body along the lymph channels.

The term "inhalation tuberculosis" as used by Behring refers to direct infection of the lower respiratory passages by tubercle bacilli. This mode of infection is considered by him to be extremely rare, if it ever occurs. He does not believe that laryngologists are in any real danger of contracting tuberculosis of the lungs in this way and he ridicules the idea that books and papers used by consumptives are a source of infection. Orth believes that the tubercle bacilli may be breathed into the lungs and reach the finer bronchioles and alveoli in the same way that carbon pigment from coal dust does. Moreover it is not necessary that inhaled tubercle bacilli should at once reach the lungs in order to produce consumption.

Many of them are stopped in the upper air passages and may affect the lungs only after they have produced lymph gland tuberculosis in the manner described by Behring. As shown by Ito the tonsils are often portals of entry. Infection in this way should be included in the term "inhalation tuberculosis" and the same prophylaxis is required as would be if the bacilli were breathed directly into the lungs. Infection from the mucosa of the alimentary tract is not limited, according to Orth, to infection from milk or food, but as stated by Behring himself, a child creeping about the floor or living in the same room with consumptives is very likely to get tubercle bacilli into its mouth and intestinal tuberculosis may be produced by the swallowing of spittle.

Frænkel thinks that the practical result of the acceptance of Behring's views would be the abandonment of all the approved prophylactic measures now in force against tuberculosis. Orth's remarks indicate that Behring's views are not as radical as they first appear and that the ordinary prophylactic measures would be as necessary as ever were his views accepted.

ARTHUR T. LAIRD.

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Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, JULY, 1904

Deaths

	1901	1902	1903	1904
Consumption	15	17	12	18
Typhoid Fever	0	1	1	1
Scarlet Fever	0	0	0	1
Measles	0	2	2	0
Diphtheria and Croup	1	1	0	2
Whooping-cough	0	1	1	0
Diarrhœal diseases (under two years)	10	17	25	21
Pneumonia	2	4	15	9
Broncho-pneumonia	0	0	1	2
Bright's Disease	12	7	12	15
Apoplexy	15	4	6	8
Cancer	6	5	10	7
Accidents and Violence	17	12	11	9

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	9	12	21	21
Child's Hospital	0	0	0	0
County House	6	3	7	5
Home for Aged Men	2	0	0	2
Home for Friendless	1	0	0	0
Homeopathic Hospital	4	3	3	6
Hospital for Incurables	0	0	0	1
House of Good Shepherd	0	1	0	0
House of Shelter	0	1	0	0
Little Sisters of the Poor	0	0	0	0
Public Places	5	6	7	3
St. Francis de Sales Orphan Asylum	0	0	3	1
St. Peter's Hospital	0	3	3	5
St. Margaret's House	2	2	4	7
St. Vincent's Female Orphan Asylum	0	0	0	2
Total deaths	142	126	177	169
Death rate	16.71	14.83	20.83	19.89
Death rate less non-residents		13.55	18.36	18.24
Births				117
Marriages				36

WORK OF HEALTH PHYSICIANS

	1902	1903	1904
Total assignments made	73	77	79
Number of calls made	290	295	347

INSPECTION

In the Bureau of Markets and Milk there were forty-five markets inspected, twenty milkmen, two hide houses, two slaughter houses, and fourteen inspections were made of the public market. Five samples of milk were taken and ten tests were made, of which ten were found to be above the standard of 3.2 per cent. of butter fat.

DETAILED RESULTS OF TESTS

Tests	Temperature	Specific Gravity	Fats	S. G. at 60°	TOTAL SOLIDS
2	75°	30	3.8	28	11.7
2	70	32	3.2	30.7	11.7
2	72	30	3.4	28.4	11.3
2	70	31	3.6	29.7	11.9
2	68	30	4.	29.	12.2

In the Bureau of Plumbing, Drainage, and Ventilation, there were two hundred and three inspections made, of which one hundred and forty-five were of old buildings, and fifty-eight of new buildings. Forty-four inspections were made of iron drains laid, twenty-four of connections with street sewers, thirty-one of tile drains, thirty-seven of cesspools, seventy-five of wash basins, sixty-seven of sinks, fifty-two of bath tubs, fifty-one of wash trays, eighteen of trap hoppers in yard, and eighty of tank closets. One hundred and sixty-three permits were issued of which one hundred and twenty-eight were for plumbing and thirty-five for building purposes. Twenty-one plans were submitted to the Department for approval, of which twelve were of old buildings and nine of new buildings. Sixteen water tests were made, also three blue and red tests and six peppermint tests.

In the Bureau of Nuisances, there were sixty-nine complaints made, of which nine were of privies, twelve of closets, seven of drains, six of plumbing, six of water, two of filthy cellars, eleven of filthy premises, two of garbage, three of smoke and three of odors. One hundred and twenty-eight inspections were made, and ninety-seven reinspections. Twenty-eight complaints were found to have been made without cause, and twenty nuisances were found to be abated on reinspection. Two hearings were held before the Commissioner of Public Safety at which twenty-two cases were brought up.

BUREAU OF CONTAGIOUS DISEASES

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	4	9	3	4
Scarlet Fever	4	4	7	7
Diphtheria and Croup	10	16	13	8
Chickenpox	2	4	1	0
Measles	27	7	38	1
Whooping-cough	2	0	0	0
Consumption	1	0	1	2
Total	50	40	63	22

Number of days quarantine for diphtheria:
Longest...... 31 Shortest...... 8 Average...... 17⅔

Number of days quarantine for scarlet fever:
Longest...... 44 Shortest...... 11 Average...... 27

Fumigations:
Houses.................. 27 Rooms.................. 71

ANTITOXIN

Cases of diphtheria reported	8
Cases in which antitoxin was used	8
Cases in which antitoxin was not used	0
Deaths after use of antitoxin	2

One of the deaths from diphtheria was a male, age two years, antitoxin was used on the fifth day, died of membranous croup; the other death from diphtheria was a female, age two years six months, antitoxin used on the second day, 8,000 units given in all, throat all cleaned up in five days, cause of death anorexa, nephritis and urticaria and exhaustion following.

BUREAU OF PATHOLOGY

Bender Laboratory Report

	1902	1903	1904
Initial positive	14	10	2
Initial negative	15	15	16
Release positive	17	10	1
Release negative	23	12	5
Failed	4	2	
Total	73	49	24

Tests of Sputum for Tuberculosis

Initial positive	1	Initial negative	1

There is nothing specially noteworthy in the statistics of deaths except in connection with the infant mortality, which shows the usual increase for the month of July. A statement has been prepared, and is transmitted herewith, of the causes of death of children under five years of age. From this table it will be seen that out of fifty deaths among infants, eleven were caused by cholera infantum, fourteen by marasmus and fifteen by some form of gastrointestinal disturbance. It is impossible to say just how many of these cases were due to infected milk, but the Department hopes at some future time to collect some statistics which may indicate, in a general way at least, the relation of the milk supply to infant mortality during the hot summer months. It is certainly productive of a very high death rate for the summer months that fifty of the deaths out of a total of one hundred and sixty-nine should be among children under five years. In other words, little less than one-third of the entire death rate for the month was among children. These statistics, together with the large number of deaths from consumption still occurring in the city, lead one to suppose that a very active general movement throughout the State supported by vigorous general regulations might be productive in limiting the deaths from these two causes.

The causes of death of those over seventy years of age is also included in this report and furnishes an interesting study to practitioners of medicine.

Under the Bureau of Markets and Milk it will be noticed that while the percentage of butter fats in the various tests is satisfactory, the total solids found in the tests is a little under the normal.

Under the Bureau of Contagious Diseases it will be noticed that the city is in a most satisfactory condition so far as communicable diseases are concerned. It is to be noticed also that the cases of scarlet fever are more numerous than during former years, but it is expected that the infection from this disease will be limited to a very small number.

DEATHS UNDER FIVE YEARS

Sex	*Age*	*Ward*	*Chief Cause*	*Consecutive Cause*	*Duration*
Male	8 mos.	13	Typhoid Fever	Peritonitis	120 days
Male	2 yrs.	9	Diphtheria		2 days
Female	2 yrs. 6 mos.	11	Diphtheria	Nephritis	1 mo.
Female	2 yrs. 6 mos.	15	Cholera Morbus	Meningitis	2 days
Female	4 yrs. 5 mos.	8	Tubercular Peritonitis		2 mos.
Male	3 mos.	9	Cerebro-Spinal Meningitis		15 days
Female	10 mos.	2	Acute Cerebro-Spinal Meningitis	Ileo-Colitis	4 days
Female	1 yr. 6 mos.	12	Acute Meningitis	Mitral Stenosis	10 days
Male	6 mos.	13	Broncho-Pneumonia	Marasmus	3 days
Male	1 yr. 7 mos.	13	Convulsions	Indigestion	4 wks.
Male	3 mos.	12	Eclampsia		3 days
Male	5 mos.	2	Broncho-Pneumonia	Inanition	4 mos.
Female	1 yr.	6	Pneumonia		2 days
Male	2 yrs. 6 mos.	10	Lobar Pneumonia	Empyema	23 days
Male	4 mos.	6	Indigestion, Rachitis		13 days
Male	7 mos.	19	Entero-colitis		1 day
Male	6 mos.	13	Exhaustion	Entero-colitis	1 day
Female	8 mos.	5	Acute Enteritis		2 days
Female	4 mos.	10	Infantile Indigestion	Convulsions Exhaustion	25 days
Female	7 mos.	4	Acute Gastro-enteritis		3 days
Male	9 mos.	10	Cholera Infantum	Exhaustion	3 days
Female	4 mos.	3	Entro-colitis		4 days
Male	8 mos.	12	Ileo-colitis, Bronchitis	Meningitis	8 days
Male	8 mos.	2	Cholera Infantum		8 days
Male	5 mos.	13	Purulent otitis media	Chronic Ileo-enteritis	86 days
Female	5 mos.	11	Cholera Infantum		1 day
Female	6 mos.	10	Cholera Infantum		1 day
Female	5 mos.	4	Gastro-enteritis, Bronchitis		3 days
Female	2 mos.	18	Cholera Infantum		4 days
Female	8 days	19	Cholera Infantum		2 days
Female	1 mo.	15	Gastritis		10 days
Female	5 mos.	2	Cholera Infantum		8 days
Male	8 mos.	8	Cholera Infantum		
Female	9 mos.	3	Cholera Infantum		10 hrs.
Female	6 mos.	17	Cholera Infantum		
Male	1 yr.	13	Chronic Colitis		2 mos.
Female	2 mos.	19	Acute General Eczema	Exhaustion	1 day
Male	21 days	12	Marasmus		20 days
Male	5 days	10	Inanition		6 days
Male	3 days	12	Marasmus	Intestinal Indigestion	11 days
Male	2 mos.	8	Marasmus		2 days

Deaths Under Five Years—*Continued*

Sex	*Age*	*Ward*	*Chief Cause*	*Consecutive Cause*	*Duration*
Female	8 mos.	3	Marasmus		11 days
Female	1 yr.	4	Marasmus		
Female	1 yr. 5 mos.	4	Marasmus		
Male	4 mos.	11	Marasmus		35 days
Female	5 mos.	8	Marasmus	Exhaustion	1 day
Male	3 mos.	10	Marasmus		1 day
Female	19 days	18	Marasmus		20 days
Male	11 mos.	6	Marasmus		45 days
Male	3 mos.	13	Marasmus		108 days
Female	3 mos.	13	Heat Prostration	Marasmus	2 days
Male	4 mos.	13	Marasmus		2 wks.

Deaths at Seventy Years and Over

Sex	*Age*	*Ward*	*Chief Cause*	*Consecutive Cause*	*Duration*
Male	77 yrs.	7	Apoplexy		
Male	75 yrs.	14	Cerebral Hemorrhage	Paralysis	3 days
Female	84 yrs.	7	Cancer of Stomach		48 days
Female	83 yrs.	5	Cancer of Stomach		93 days
Male	76 yrs.	7	Cerebral Hemorrhage	Arterio-Sclerosis	3 days
Male	71 yrs.	13	Apoplexy		
Male	71 yrs.	11	Mitral Insufficiency		
Female	70 yrs.	16	General Arterio-Sclerosis (Senility)		1 mo.
Male	71 yrs.	13	Arterio-Sclerosis	Exhaustion	7 mos.
Female	84 yrs.	1	General Atheroma of Arteries	Heart Failure	16 days
Male	80 yrs.	2	Chronic Bronchitis	Valvular Lesion of Heart	10 days
Female	83 yrs.	14	Terminal Pneumonia	General Exhaustion	2 days
Male	74 yrs.	7	Pneumonia		3 mos.
Male	82 yrs.	17	Enteritis		46 days
Female	72 yrs.	3	Acute Entero-colitis	Exhaustion	13 days
Male	74 yrs.	19	Gastro-enteritis	Age	7 days
Female	75 yrs.	6	Intestinal Toxaemia		1 mo.
Female	70 yrs.	9	Uraemia	Chronic Parenchymatous Nephritis	4 mos.
Male	76 yrs.	16	Chronic Interstitial Nephritis		43 days
Female	72 yrs.	18	Blood Poison	Gangrene	37 days
Female	80 yrs.	6	Old Age		
Female	70 yrs.	5	Senility	Exhaustion from heat	
Male	72 yrs.	11	Debility of Old Age		
Male	83 yrs.	16	Senility		

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR JULY, 1904.—Number of new cases, sixty-one. *Classification of cases:* Dispensary receiving home care, one; district cases reported by health physicians, one; charity cases reported by other physicians, thirty; patients of limited means, twenty-nine; old cases still under treatment, twenty-nine; total number of patients under nursing care, ninety. *Classification of diseases* (new cases): Medical, seventeen; surgical, one; gynaecological, two; obstetrical, thirty-eight; in general wards of guild, mothers, fourteen; infants, seventeen; in special obstetrical department, mothers, four; infants, three; dental, two; skin, one. Removed to hospitals, one; died, one.

Visits of Guild Nurses (all departments): Number of visits with nursing treatment, five hundred seventy-five; for supervision of convalescents, one hundred seventy-six; total number of visits for month, seven hundred fifty-one; graduate nurses on duty, four; assistant nurses on duty, two. Cases were reported to the Guild by one health physician, and by nineteen other physicians; one dentist in attendance.

CIVIL SERVICE EXAMINATION.—The State Civil Service Commission announces general examinations to be held September 10th, 1904, including the following positions: Apothecary in state hospitals and institutions; physicians in state hospitals and institutions of both regular and homeopathic schools; trained nurses in state hospitals and institutions. Applications for these examinations should be made prior to the date of examination, and full particulars, application blanks, etc., may be obtained by addressing the chief examiner of the commission in Albany.

FIGHTING TUBERCULOSIS.—The trustees of the Western Reserve University at Cleveland, Ohio, have voted to establish an anti-tubercular dispensary in connection with the medical school. This is the second dispensary of this kind to be opened in the United States. The function of the dispensary is chiefly preventive. It registers those who are infected with the disease, locates houses in which tubercular people live, educates the people along fundamental hygienic lines; its agents also visit the homes of the sick, giving instructions in the care of those affected with the disease.

PHYSICIANS LIABLE.—A physician who furnishes patients with distilled spirits, wine or malt liquor, to which no drug or medicinal ingredient has been added, involves himself in special tax liability under the internal revenue laws. A copy of this decision by the United States Commissioner of Internal Revenue has lately been received at the office of the local collector of internal revenue.

NEW YORK SCHOOL OF CLINICAL MEDICINE.—The New York School of Clinical Medicine announces the following changes in faculty: General Medicine: Profs. Wm. Brewster Clark and Henry Lawrence Schively. Asso. Profs. Thos. M. Acken and Edw. L. Kellogg. General Surgery: Prof. Simon J. Walsh and Asso. Prof. J. Cameron Anderson. Gynecology:

Profs. Augustin H. Goelet and A. Ernest Gallant. Pediatrics: Profs. Dillon Brown and Henry Comstock Hazen. Nervous and Mental Diseases: Profs. J. Arthur Booth and Emmet C. Dent. Gastro-Intestinal Diseases: Prof. Robert Coleman Kemp. Ophthalmology and Otology: Profs. John L. Adams and Geo. Ash Taylor. Dermatology: Prof. Robert J. Devlin. Laryngology and Rhinology: Prof. Max J. Schwerd. Orthopaedic Surgery: Prof. Homer Gibney. Hydrotherapeutics: Prof. Alfred W. Gardiner. Genito-Urinary Diseases: Profs. Wm. K. Otis, Walter Brooks Brouner and John von Glahn. Pathology: Prof. E. E. Smith. The facilities of the school have been materially enlarged. John L. Adams, M. D., secretary.

UNION OF MEDICAL SOCIETIES.—The American Medical Society for the Study of Alcohol and Other Narcotics was organized June 8, 1904, by the union of the American Association for the Study of Inebriety and the Medical Temperance Association. Both of these societies are composed of physicians interested in the study and treatment of inebriety and the physiological nature and action of alcohol and narcotics in health and disease. The first society was organized in 1870 and has published five volumes of transactions and twenty-seven yearly volumes of the *Quarterly Journal of Inebriety,* the organ of its association. The second society began in 1891 and has issued three volumes of transactions and for seven years published a *Quarterly Bulletin* containing the papers read at its meetings. The special object of the union of the two societies is to create greater interest among physicians to study one of the greatest evils of modern times. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiological, physiological and therapeutic relations; second, to secure more accurate investigations of the diseases associated or following from the use of alcohol and narcotics; third, to correct the present empirical treatment of these diseases by secret drugs and so-called specifics and to secure legislation prohibiting the sale of nostrums claiming to be absolute cures containing dangerous poisons; fourth, to encourage special legislation for the care, control and medical treatment of spirit and drug takers. The alcoholic problem and the diseases which centre and spring from it are becoming more prominent and its medical and hygienic importance has assumed such proportions that physicians everywhere are called on for advice and counsel. Public sentiment is turning to medical men for authoritative facts and conclusions to enable them to realize the causes, means of prevention and cure of this evil. This new society comes to meet this want by enlisting medical men as members and stimulating new studies and researches from a broader and more scientific point of view. As a medical and hygienic topic the alcoholic problem has an intense personal interest, not only to every physician, but to the public generally in every town and city in the country. This interest demands concentrated efforts through the medium of a society to clear away the present confusion, educate public sentiment, and make medical men the final authority in the consideration of the remedial measures for cure and prevention. For this purpose a most urgent appeal is made to all physicians to assist in making this society the medium and authority for the scientific study of the subject. The secretary, Dr. T. D. Crothers, of Hartford, Conn., will be pleased to give any further information.

Summer Medical Çourses in Paris.—From Monday, September 19th, to Saturday, October 1st, courses and practical demonstrations will take place at the Science Societies House, Rue Serpente, and in several hospitals, at Paris. These courses will cover all of the various departments of medicine and will be conducted by the leading men of such departments of medicine in Paris. The cost for each course, which will include from eight to ten lessons, is twenty francs. Detailed programs and all other information will be furnished upon application to Dr. Marchais, Hotel des Societes Savantes, Rue Serpente, Paris.

American Medical Editors' Association.—The Thirty-fifth Annual Meeting of the American Medical Editors' Association, held at Atlantic City in June, 1904, was one of the most successful in its history, C. E. de M. Sajous, presiding. The many papers presented as well as the numerous applications received for membership, is possibly the best indication of the interest displayed in the Society. The meeting was attended by a large number of the leading medical editors of the United States. The following resolutions were adopted, and copies transmitted to medical journals for publication :

Whereas, The public is, and long has been, suffering from the use of nostrums, and from the misuses of medicine, and,

Whereas, The medical profession and press have endeavored by every means in their power to instruct the laity upon the subject, and,

Whereas, Some journalists either do not understand the true situation, or find it to their pecuniary gain to favor the use of nostrums and pander to the greed of their manufacturers at the expense of the health or even the lives of their dupes among the people, and,

Whereas, The editor of the *Ladies' Home Journal,* Mr. Edward Bok, in an able and vigorous editorial in the May number of that journal laid the truth of the matter before his readers, thus aiding in the work of warning and educating and conserving the health and welfare of the public, be it

Resolved, That the American Medical Editors' Association approve and commend Mr. Bok for the intelligent, honest, fearless and well grounded position he has taken, which has been thoroughly appreciated by us and the medical profession generally.

Resolved, That a copy of these resolutions be spread upon the minutes of this meeting, be transmitted to Mr. Bok, and be published in the medical journals throughout the country.

Fourth Pan-American Medical Congress.—The fourth Pan-American Medical Congress, which was to have convened the latter part of December of this year at Panama, has been postponed until the first week in January. This was done at the request of many physicians who proposed to attend it, as they desired to be at home with their families during the Christmas holidays. The delegates from this side of the continent will therefore leave on December 27th, if they go down from New York by the regular Pacific Mail Lines, or at other dates if they go by the way of New Orleans or Jamaica.

This congress bids fair to be the most successful Pan-American congress that has ever been held, on account of the central situation of Panama and its easy approach from both sides of North America, Mexico, and the Central American republics, as well as the countries on the north and west side of South America. There will be but four sections of this congress—Surgery, Medicine, Hygiene, and the Specialties.

International Congress of Arts and Science.—This congress will convene at St. Louis, September 19th to 25th, 1904. The congress will be divided into sections and the subjects discussed in its sections will be about 128 in number, covering most of the sciences and including medical science. Prominent scientists and scholars throughout the country have been invited to join this congress and such invitees are requested to respond promptly to the director of congresses, Mr. Howard J. Rogers, Universal Exposition, St. Louis, Mo.

International Congress of Medicine.—The Fifteenth International Congress of Medicine will convene at Lisbon, Portugal, in April, 1906. The congress will be divided into seventeen sections, covering all departments of medicine and surgery, and outside of the medical men no one will be admitted except scientific men whose names may be presented by the executive committees. The official language is to be the French. However in the general assemblies and sections English and German may also be used. The President of the Committee of Organization is Dr. M. da Costa Alemao; the general secretary is Dr. Miguel Bombarda, Hospital de Rilhafolles, Lisbon.

Hygienic Congress.—The First International Congress for Health and Sanitation in the Home will be organized under the auspicies of the French Hygienic Society on the occasion of the International Exposition of 1904 at Paris. The organization will take place in October, 1904, at the Grand Palace, Champs-Elysees. Questions appertaining to the construction and maintenance of hotels, residences, schools, and all buildings used as places of residence upon good hygienic principles will be thoroughly discussed.

IN MEMORIAM

John O'Flaherty, M. D.

Dr. John O'Flaherty, who graduated from the Albany Medical College in 1864, died at Hartford, Conn., July 31, 1904. Within the last year arterio-sclerosis developed, but he continued to practice up to within a week of his death, which was from acute nephritis. Immediately after his graduation in 1864 he was appointed assistant surgeon of the 170th New York volunteers and remained in the service until June, 1865, when he was mustered out. He settled in Hartford soon after leaving the army and soon built up a large practice and has been very highly respected and a prominent member of the profession up to his death. He was twice married. Of the children of his first marriage one daughter was educated in medicine and has been an assistant for her father. The other two are teachers. A son died in early manhood. Dr. O'Flaherty was very active in the promotion and building of St. Francis' Hospital, and has been president of its medical staff for many years and up to the time of his death. He was an active member of the County and State Medical Societies and president of the City Medical Society. He was also treasurer of the New England Alumni of the Albany Medical College and a very active member of the Irish-American Historical Society. As a physician he was eminently conservative and cautious and never antagonized anyone, but stated his views clearly and frankly without argument or feeling. He was very active in all civic work and was for a time coroner, filling the office with credit to himself. He was offered political preferment, but refused, preferring professional work. He was a constant attendant of the Medical Society and a great reader of medical literature. He built up a very large circle of friends and his funeral was attended by the Medical Society, the staff of St. Francis' Hospital and a large circle of friends and acquaintances. T. D. C.

Book Reviews

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, Other than Drug-giving, Useful for the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A. M., M. D. Volume VII. *Mechano-therapy and Physical Education, Including Massage and Exercise,* by JOHN K. MITCHELL, M. D.; and *Physical Education by Muscular Exercise,* by LUTHER HALSEY GULICK, M. D. *With Special Chapters on Orthopedic Apparatus,* by JAMES K. YOUNG, M. D.; on *Corrective Manipulations in Orthopedic Surgery (including the "Lorenz Method")*, by H. AUGUSTUS WILSON, M. D., and on *Physical Methods in Ophthalmic Therapeutics,* by WALTER L. PYLE, M. D. With 229 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1904.

The title of this book indicates its place in the system planned by Dr. Cohen, of which one volume is to come. In Section I, consisting of three chapters, full instruction in the technique and effects of massage is given, together with the therapeutics of general and local massage. It is intended that the reader, not content with the order for massage or the discretion of the operator, may learn to prescribe intelligently and definitely. Dr. Mitchell dwells largely upon the general effects of massage, and repeats his well-known studies upon changes in the blood following its use. He asserts that even pernicious anæmia shows temporary improvement. He describes the indications for treatment, and its limitations. He calls attention, parenthetically, to "a curious and little-described but probably not very uncommon cause of diarrhœa, from irritation by retained masses of hardened feces; in short, the diarrhœa caused by constipation. In these instances the stools are generally not liquid, but consist of small, stony, hard lumps." This condition occurs frequently, and many diarrhœas, less characteristic than that described, are due to this cause, and are not always recognized. He includes osteopathy as a form of massage, and points out some of its absurdities, as well as its legitimate claims, asserting that if "all physicians really knew and appreciated the proper place and value of massage and other forms of mechanical therapeutics, and made right use of the knowledge, the osteopaths would never have had a chance."

Section II, upon "Exercise as a Remedial Measure," goes fully into the question of passive and active movements. Exercises are described and graded for very weak and for stronger patients. These include movements of the limbs and trunk and breathing. Chapters are given to exercises for obesity and gout and to Schott's and Oertel's systems. One great lesson has been learned from these studies in the mechanism of heart disease, that compensation, having been lost, may be regained, not by absolute rest, but by cautious development of the muscular power of the heart. In Chapter IX, the treatment of deformities by muscular exercise is described. This includes curvatures of the spine and other postural deformities, flat foot, and acquired and congenital talipes. Chapter X is given to methods of training by precision exercises in locomotor ataxia and infantile spastic paralysis. All of these lessons are profusely and graphically illustrated.

Part II is an essay by Dr. Luther Halsey Gulick on Physical Education by Muscular Exercise. It may be seen from the title that Dr. Gulick's work is constructive and developmental, and is thus distinguished from Dr. Mitchell's, which is essentially therapeutic. In this part athletics and gymnastics are analyzed and entertainingly discussed. The prescription of one method or another of exercise is probably a daily matter with the practicing physician, but it is not as probable that the prescription is always based upon careful thought. By perusal of Dr. Gulick's treatise he may find the reasons for his preferences. The subject is summed up by the author in the distinction between gymnastics and athletics, namely, that "in athletics the results to be sought are objective, they relate to number—as to space in jumping, time in running, etc., whereas in gymnastics they relate more to the form in which the movement is done and hence are subjective. The athlete competes against time and space—the gymnast in self control."

The Addenda consist of Chapters on Orthopedic Apparatus by Dr. James K. Young; Corrective Manipulations in Orthopedic Surgery, by Dr. H. Augustus Wilson and Physical Methods Employed in Ophthalmic Therapeutics, by Dr. Walter L. Pyle.

Like others in this series this book treats of special methods of treatment "other than drug-giving." It is of use to the reader in two ways, first that he may be enlightened in the value and technique of the operations described, and secondly, that he may have a treatise at hand for reference. The leading sections on Massage and Exercise are complementary, and may well have the consideration of the physician who is dealing with neurasthenia. Dr. Gulick's description of Methods of Muscular Development for the preservation of health constitutes a very instructive chapter upon prophylaxis against disease.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A. M., M. D., Philadelphia, U. S. A. With the Collaboration of Wm. Osler, M. D., Baltimore; John H. Musser, M. D., Philadelphia; Jas. Stewart, M. D., Montreal; J. B. Murphy, M. D., Chicago; A. McPhedran, M. D., Toronto; Thos. M. Rotch, M. D., Boston; John G. Clark, M. D., Philadelphia; James J. Walsh, M. D., New York; J. W. Ballantyne, M. D., Edinburgh; John Harold, M. D., London; Edmund Landolt, M. D., Paris; Richard Kretz, M. D., Vienna. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels, and Carlsbad. Volume I. Fourteenth Series, 1904. Philadelphia: J. B. Lippincott Company, 1904.

The first article in this volume, "The Chlorid Reduction Treatment of Parenchymatous Nephritis," by F. Widal, M. D., and A. Javal, M. D., is one of great interest and of practical importance. The writers made nine tests upon a patient with parenchymatous nephritis in four of which sodium chloride was given to excess, while in the other five it was restricted. It was found that a reduced quantity of salt caused a lessening of the œdema and albuminuria, which returned when the salt was given even with no food but milk. These symptoms disappeared as completely on a diet of meat, potatoes, butter and sugar when the salt was restricted as when milk only was given and the conclusion is that such patients can be allowed a mixed diet without ill effects if the quantity of sodium chloride is restricted. In "The Therapeutic Applications of Colloid Silver," Drs. Netter and Salomon state that it has no injurious results, whether used by means of inunction or by intra-venous injection, and that it is a valuable agent in a variety of infections.

In the section on medicine Dr. Nathan Smith Davis contributes an article on "The Increased Prevalence and Mortality of Pneumonia During the Last Sixty Years, with Reference to its Prevention and Treatment." Over sixty years of practice enable Dr. Davis to write on this subject with authority and he ascribes the increased prevalence of the disease largely to the use of alcohol and narcotics, migration to cities and indoor work. These factors also increase the mortality of the disease but, according to Dr. Davis, the antiphlogistic and blood-letting treatment of the second and third quarters of the nineteenth century gave a lower death rate than any methods used before or since. In this section Dr. Henry W. Cattell gives in a concise article the underlying laws of cryoscopy and its practical application to medicine and Dr. James J. Walsh has an excellent clinical lecture on "The Early Diagnosis of Pulmonary Tuberculosis."

In the section on surgery in this volume there are papers of interest instead of the usual reports of surgical clinics. In "Angioma and its Treatment," Dr. Carl Beck considers the various methods of procedure.

He uses the ligature largely as a preliminary step to excision, which he regards as the best method in most cases. Electricity is recommended in a few cases, but the injection of foreign substances has been given up by Dr. Beck. Doctors John G. Clark and John W. Luther contribute "A Critical Review of Methods of Intestinal Anastomosis, with Especial Reference to the Connell Suture. A Report of Five Cases." They conclude that the Connell suture is the most perfect and rapid yet devised for end to end or lateral anastomosis, but that for closure of perforations or lacerations Halstead's rectangular quilt suture is to be preferred. The writers believe that all mechanical devices for intestinal anastomosis should be discarded in favor of the Connell suture.

It is noteworthy that the two articles in the section on gynecology deal with non-operative treatment, but both writers disclaim a belief in the exclusive use of this method.

The last 115 pages of the volume are given to "Progress of Medicine during 1903." This is divided into three sections, that on medicine being written by David L. Edsall, M. D.; that on surgery by Joseph C. Bloodgood, M. D., and that on treatment by A. A. Stevens, M. D. The important contributions of the year are briefly reviewed by these writers, and critically reviewed by Dr. Bloodgood in the surgical section, which is profusely illustrated. R. G. C.

Diseases of the Nose and Throat. By D. Braden Kyle, M. D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia; Consulting Laryngologist, Rhinologist and Otologist to St. Agnes' Hospital. Third Edition, Thoroughly Revised and Enlarged. Octavo Volume of 669 Pages, with 175 Illustrations, and Six Chromo-lithographic Plates. Philadelphia, New York, London: W. B. Saunders Company, 1904. Cloth, $4.00 net; Sheep or Half Morocco, $5.00 Net.

A considerable number of the new books on the nose and throat, and mainly good books, too, have been published during the past year, but the new third edition of Dr. Kyle's will easily rank as one of the very best text-books on this subject. It is very complete in every respect, and details have not been considered to such an extent as to make it too advanced for the student beginning the study of the diseases of which it treats. The general plan of the author's previous editions has not been very much changed, although the entire book has been thoroughly revised, and many valuable additions have been made, particularly in the chapters on epidemic influenza, Karatosis, Gersuny's paraffine method for the correction of nasal deformities, and also in the chapter on the X-Rays in the treatment of the carcinoma.

Among the most interesting chapters in the book are those relating to the reflex nasal neroses, in which the writer gives the result of his experiments in the chemistry of the saliva and nasal secretions. Particular reference is made to the importance of altered chemical reactions in causing hay fever, and to the general consideration of the mucous membranes and their pathological changes. The author is of the opinion that a study of the saliva,—sialosemeiology,—is of the greatest importance, and in many cases the determining of the altered chemistry of this secretion, will be of great value in diagnosis and treatment. That the chemistry of the secretions has a great deal to do with bringing on hay fever, he illustrates in a number of cases by rapidly changing the reaction of the secretion either from acid to alkaline or *vice versa,* and in many instances he was able either to partially or wholly avert the attack.

The chapter devoted to the operative treatment of deformities of the nasal septum has also been partially rewritten and enlarged. The author still believes that his V-shaped operation is one of the best for the majority of the cases of septal deflection. C. F. T.

The Gazette Pocket Speller and Definer, English and Medical. Second Edition. New York: The Gazette Publishing Co., 503 Fifth Avenue.

This book is printed in small, but plain, type on thin paper, measuring 5½ x 3 inches, bound in soft leather, and may be easily carried in the pocket. From casual review of the definitions they appear to be correct and concise, and the dictionary may be recommended for the purpose intended.

Current Medical Literature

PSYCHIATRY

Edited by G. Alder Blumer, M. D.

An Unusual Form of Mental Disturbance. (*Ueber eine seltenere Form geistiger Störung.*)

W. Alter. *Monatsschrift für Psychiatrie und Neurologie, Bd. xiv, Heft 4, October, 1903.*

The writer discusses a case which touches upon the phenomenon of altered identity. Some attention has been recently given to disturbances of the sensation of knowing and of exactness in their memory as new factors in mental diseases. The feeling of knowing has been regarded as a compound sensation which accompanies the ability to recall correctly previous facts.

The writer has observed some cases of mental disease of a peculiar character, in which this faculty of recalling previous knowledge has been lost, and the disorder has been limited to this loss, which plays a dominating role in the mental disorder. This symptom complex is characteristic of a very severe psychosis which is to be differentiated from the more ordinary manifestations of mental disease.

The patient whose case is cited was a merchant, fifty-four years of age, with quite a pronounced hereditary taint. He passed through an attack of acute mental disorder with hypochondria and disturbances of the special senses. There were also a suicidal tendency and pronounced melancholia, followed by a condition of stupor, apparently based upon delusions. He then became somewhat more active, but was preoccupied and appeared very anxious. When asked as to his condition he would reply he could not say, that it was not at all clear to him. He then wrote a letter to his wife in which he said that his body had become a mere caricature so that when he changed his position all the conditions about him were changed, and the limbs were altered, and that he was about to write with a false hand, that his head and eyes had run in together, so that he could not speak, could not read the paper, but that he had no pain or discomfort except the feeling that his whole body, so to speak, was paralyzed, and that he was constantly losing it more and more. He also stated that he did not know himself because his identity changed every minute. When asked to offer his hand he would say "This is not my hand but it is something else." When his hand was compared with that of another person he said that the other hand was larger, and that his hand was not any more a perfect hand but was entirely changed. When asked about his appearance in the mirror he simply said he could not explain the change but that he looked entirely different. This condition continued with greater or less intensity for a long time, and was followed by a temporary improvement and a relapse.

The writer discusses these changes of identity to a great extent, and seeks for an explanation in the imperfect and perverted projection of peripheral sensations upon the perceptive centers of the brain. For correct recognition it is necessary that all sensations be properly combined and associated in the mental centers. In the case reported there was a dissociative process by which peripheral perceptions were erroneously apprehended and led to incorrect conclusions. This is essentially a disorganization of memories and of previous acquisitions of knowledge. It has to do particularly with the personality of the patient in that the representation of his own body in the brain is at fault. This would seem to point toward hysteria as in all probability the basis of this peculiar psychosis.

The Functions of the Frontal Lobe.

Joseph Shaw Bolton. *Brain, Spring Number, 1903.*

The author's paper deals with the functions of the frontal lobes from the standpoint of the morbid anatomy of mental disease and is concerned especially with the prefrontal regions of the cerebrum. In two hundred cases of mental disease recently reported by the writer, it was demonstrated that the amount of cerebral wasting and the associated morbid changes inside the cranium varied directly with the amount of dementia existing in the patient. The greatest amount occurred in the prefrontal region. The wasting is next most marked in the remainder of the first and second frontal convolutions. It is perhaps next most marked in the ascending frontal and Broca's convolution, then the first temporal convolution and insula and in the superior and inferior parietal lobules. It is least marked in the remainder of the cerebrum, particularly the orbital lobes and inferior and internal aspect of the temporo-sphenoidal lobe and posterior pole of the hemisphere.

The author reports a case of dementia paralytica which seems almost unique as to its bearing on the present paper. The anterior centre was greatly wasted, the psychomotor area showed some but much less wasting, the great posterior centre of association (temporal and parietal), the insula and the precuneal were acutely changed, and the visual projection area was practically unchanged. Such cases as this illustrate more clearly than do those of any other variety of mental disease, the primary affection of the anterior centre of association, which is followed later on by decay of the posterior centres of association. The projection visual centres which are first to develop still remain unaffected. In congenital dementia (idiots and imbeciles) degrees of under-development of the prefrontal cortex exist which vary inversely with the mental capacity of the individual. In chronic and recurring insanity without dementia, the third, fourth and fifth layers of the prefrontal are about normal, but degrees of under-development of the pyramidal layers of nerve fibres exist. In dementia and dementia paralytica degrees of wasting or retrogression exist in the layers of the prefrontal cortex which vary with the amount of dementia present.

The author, from his studies, believes that the pyramidal layer of the prefrontal region is the last cell layer of the cortex to develop during the process of lamination, and it is also the first to undergo retrogression in dementia; its degree of development in normal infants, and in congenital aments of every grade, varies directly with the mental power of the individual. The pyramidal layer therefore, subserves the "psychic" or associational function of the cerebrum. This is preeminently the case in the prefrontal region, less so in the visuo-psychic and least of all, in the visuo-sensory region. The third or granular layer is developed before the pyramidal layer and therefore probably subserves the reception or immediate transformation of afferent impressions, whether from the sense organs or from other parts of the cerebrum. The fifth or polymorphic layer is the first to be differentiated and it is the last to fail in dementia. This layer probably subserves the lower voluntary functions of the animal economy.

The evidence adduced by the writer's study seems to point irresistibly to the conclusions that the anterior centre (prefrontal) of association of Flechsig is the region concerned with attention and the general orderly coordination of psychic processes and that the cellular elements through the cortex which are especially concerned in the performance of associational functions are those of the pyramidal layer of nerve cells. The author believes that this great anterior centre of association lying in the prefrontal region is under-developed in all grades of primary mental deficiency and undergoes primary atrophy *pari passu* with the development of dementia. It is therefore the region of the cerebrum which is concerned with the performance of the highest coordinating and associational processes of the mind.

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THE PRESENT PROBLEM OF PEDIATRICS.

Excerpt of address delivered at St. Louis, Mo., U. S. A., before the Congress of Arts and Sciences, September 21, 1904.

BY PROFESSOR THEODOR ESCHERICH,

VIENNA, AUSTRIA.

The development of Pediatrics as an independent science extends back to the beginning of the previous century and to the reform of medicine by the great French clinicians. It progressed under the mighty influence of the discoveries in pathological anatomy whose findings were being made to conform with the clinical types of disease. The reaction from this led to a one-sided growth in clinical symptomatology and in the study of disease in which the Viennese University took a prominent part. The latest tendency is to seek the key to the comprehension of the diseases of childhood by the study especially of the physiological and physio-pathological conditions of the growing organism.

The introduction and growth of modern methods of examination, which date from the middle of the previous century, had marked influence on the development of pediatrics. These methods are percussion and auscultation, thermometry, diagnostic punctures, the different endoscopic methods, chemical examination of the urine and of the stools, especially those of nursing infants, and the investigation of metabolism, carried out recently with especial enthusiasm. The most marked advance, however, has come from bacteriology, as a very great number of the diseases occurring in infancy are due to bacteria and diagnosticated with certainty only by the determination of their presence. For example, infectious diseases indicate that the causes of the diseases occurring in childhood, with the exception of those associated with birth and growth, are the same, except that the diseases need not be so intense as they attack much weaker organizations than in adults.

The reason for the manifold differences in the development and course of disease is based upon the difference in the organization of the growing body from that of one already developed. The following three laws of growth can be expounded:

(1.) Growth in cell multiplication leading to the development of the body is a function of vegetative life, especially in the younger generation of primordial cells. The growth steadily diminishes from the beginning of the development in the primordial cell; at first rapid, then less rapid in intensity.

(2.) The curve of the functional activity of the organs proceeds in inverted order and rises still higher when the histological development of the organs is completed. To the same degree the resistance of the organism increases and accordingly the mortality diminishes towards the end of childhood. The unnaturally high mortality of the first year in spite of high vital potentiality is explained by the retarded development and the functional weakness of organs necessary for the continuance and protection of life.

(3.) The development of the individual organs does not proceed continuously, but rather at different periods and at times rapidly and in a rotation which depends upon their greater or lesser importance in the foundation of life. Infancy is therefore divided into a number of periods of growth which are characterized physiologically by the growth of especial organs. In each of these periods special needs and necessities arise as a result of the backwardness of individual functions.

These conditions, together with the character of the body which varies with the age, make clear that certain diseases exclusively and others with especial frequency are observed at each of these periods, so that there is a morbid physiognomy for each period.

I. INFANCY: INFANTIA.

1. *Period of the new-born:* (1st week) characterized by passage from intra- to extra-uterine life and the retrogression of the foe-

Pathology: Malformations, foetal and inherited diseases, (lues) tumors, birth injuries, (fractures, lacerations, hæmorrhages, injuries to skull), abnormalities in the retrogression of the foetal vessels tal organs. Hyperæmia and desquamation of the cuticle.

(diseases of the navel), in the vegetative functions, icterus, irritation and lesions of the skin and mucous membranes, thereby favoring bacterial invasion of the body which still lacks its protecting bodies (alexines), local and general sepsis, gonorrheal infection.

2. *Period of Nursing:* (1st year) characterized by the necessity of exclusive milk diet due to the functional weakness of the digestive tract, marked consumption of food and great increase of body weight (three times the birth weight), rapid development of the brain; all other functions not so prominent.

Pathology: Changes, as result of failure in nutrition either in the intervals of feeding or quantity of food; relative or absolute insufficiency of digestion for nourishment, especially the artificial; irritation of the intestinal tract by bacterial fermentative products or through invasion of the intestinal wall, producing chronic intoxications and atrophy.

The rapid growth of the brain is occasionally accompanied by hyper-irritability of the nervous system (tetany), eclampsia and hydrocephalus; at the same time sensitiveness of the skin and mucous membrane (respiratory tract) and the tendency to pyogenic diseases of every kind, whereas the specific infectious diseases occur relatively seldom.

3. *Period of Milk Teeth:* (2-5 years) characterized by rapid growth and development of the bony framework, appearance of the milk teeth, the learning of walking and of speech.

Pathology: Changes in the process of ossification with their results (appearing even in the first year) from rickets, curvature of the thorax and extremities, broncho-pneumonia, etc. At the same time other dyscrasiæ also occur, status lymphaticus, scrofula, anæmic conditions.

The creeping of the child on dirty floors and the habit of sticking everything in its mouth produce, together with the lack of cleanliness, the so-called filth infections (numerous mouth and

	throat diseases, contagious affections of the skin and mucous membranes, diphtheria, whooping cough, helminthiasis, tubercular invasion of the upper respiratory and digestive tracts and the associated glandular tuberculosis, especially of the bronchial glands). From these latter the hilus phthisis, the form peculiar to this period, takes its origin. Frequent occurrence of local and miliary tuberculosis, defects of intelligence recognized by absence of or delayed speech, severe lesions of the brain, as idiocy or epilepsy appear; especial frequency of acute poliomyelitis.
II. Boyhood. Pueritia (6th year to puberty) characterized by the marked development and exercise of the musculature, increase of all functional life with slowly increasing growth of body, passage of child from family to social life (school), beginning differentiation of the sexes.	*Pathology:* The entrance into school-life brings with it injurious influences as scoliosis, myopia, nervous disorders of different kinds and the numerous contact infections, of which the most important are the acute exanthemata with their complications (nephritis, myocarditis). The irrepressible desire for movement is the cause of traumata, possibly also of the now frequently occurring appendicitis. Tuberculosis, and especially that of the glands, is less frequent and approaches the character found in adults. On the other hand there appears a new and dangerous infectious disease—acute articular rheumatism with endocarditis and chorea.
III. Puberty. In boys from 16 years. In girls (Germanic stem) from 13 years. In the latter the occurrence of menstruation, awakening of sexual feeling and development of the secondary sexual characteristics.	*Pathology:* At puberty there occur frequently in girls characteristic pathologic conditions, chlorosis, hysteria, psychoses, cardiac diseases. Otherwise the morbid conditions pass into those of adults.

The therapy must also be suited to these periods of development and necessitates marked and important differences for each in the practical application of drugs as well as physical methods of treatment. The striking difference in comparison with the treatment of adults lies in the great importance and application of individual prophylaxis which in young children depends upon the nursing and should be overseen by the physician himself. Especially is this true for the first period of growth when the protection of the newborn from external injurious influences, the avoidance of infections and method of nourishment are especially difficult questions. In no other way can the great mortality of infancy at this period be lessened. The further theoretical and practical application of this special care, the limitation of disease, the greatest possible development of the resistive power, and the child's physical development are the ideals which we must now look forward to in Pediatrics.

CANCER OF THE PANCREAS AND GLYCOSURIA.*

(*A Histological Study of the Changes in the Islands of Langerhans*)

By RICHARD M. PEARCE, M. D.,

Director of the Bender Laboratory, Albany, N. Y.

This investigation was undertaken for the purpose of determining what relation, if any, the islands of Langerhans may have to the glycosuria occasionally seen in connection with cancer of the pancreas. That pathological changes in these structures are frequently associated with diabetes has been satisfactorily demonstrated by the investigations of Opie[1] and others, and has led to a more definite knowledge of a form of diabetes which may properly be called pancreatic diabetes. No attempt has been made on the other hand, as far as I am aware, to demonstrate the presence of similar changes in connection with the glycosuria occasionally associated with cancer of the pancreas. That some of these changes—hyaline degeneration, chronic interacinar pancreatitis involving the

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*Previously published in the *American Journal of the Medical Sciences*, September, 1904, cxxviii, 478.

islands and, according to a few investigators, diminution in the number of the islands—might result from the involvement of the organ by cancer is evident from our knowledge of the secondary lesions frequently accompanying such invasion. It is well known that duct obstruction, frequently the result of cancer of the head of the pancreas, readily causes a chronic pancreatitis; and it is possible also that the destruction of a large portion of the pancreas parenchyma by the new growth may destroy the islands to such an extent that they are no longer equal to the demands made upon them.

On the other hand we have no adequate explanation of those cases in which, though the pancreas is extensively or completely replaced by the new growth, diabetes does not exist. Such complete destruction, as in the cases reported by Litten[2] and v. Hansemann,[3] is analagous to the extirpation experiments by v. Mering and Minkowski,[4] but the absence of glycosuria is opposed to their results. v. Hansemann has attempted to explain the discrepancy by assuming that in primary cancer of the pancreas the tumor cells originating from pancreas parenchyma inherit the function of internal secretion peculiar to the normal cell. This explanation, however, is entirely hypothetical and in the light of our present knowledge of pancreatic diabetes loses its force unless we assume that all primary cancers of the pancreas arise from the islands of Langerhans, which, despite the recent publication of Fabozzi[5] supporting such origin, appears most improbable. If our newer theories concerning the relations of the islands to carbohydrate metabolism are firmly grounded, we should expect to find evidence of the persistence of the islands in such cases. With these various possibilities in mind, I have made a careful histological study of thirty cases of cancer of the pancreas, in three of which glycosuria was present.

The literature offers but scanty information concerning the frequency with which glycosuria occurs in connection with cancer of the pancreas. Such cases are not uncommonly reported but without reference to the occurrence of cases not complicated by glycosuria. From a hasty review of the subject, I believe the proportion (one in ten) shown by my cases to be high. We have, however, definite information concerning the reverse condition, that is, the frequency of cancer of the pancreas in connection with all forms of diabetes. In Oser's[6] series of 188 cases of diabetes, cancer occurred in 24; in Williamson's[7] series of 23, once; and in 139 cases reported by Windle,[8] in three. v. Hansemann's[9] tabulation of 72 cases of diabetes with pancreatic lesion contains five cases of cancer. I have examined many of the original descriptions of the cases quoted in these series with the object of determining if any peculiar macroscopic or microscopic conditions existed. The task has been most unsatisfactory for many of the reports are of a clinical nature and gross and histological description are meagre or entirely lacking. This analysis, however, confirms the well known clinical fact that in the majority of cases the new growth is in the head of the pancreas and by duct obstruction causes an atrophy (chronic pancreatitis?) of the distal portion of the organ. This point is especially emphasized by v. Hansemann, Dieckhoff[10] and Windle.

The material upon which this study is based consists of the tissues from thirty cases of cancer selected from a group of thirty-five examples of new growth in the pancreas. As the material has been gathered from different sources, often from routine collections of autopsy material, it has not always been possible to procure tissues from the different portions of the uninvolved pancreas as well as from the cancerous portion, nor for the same reason, have essential data concerning clinical history and pathology been available in all cases.* Thus while all cases have been utilized in the study of the histological changes but twenty-one have been available, on account of incomplete examination of the urine, in arriving at conclusions concerning the occurrence of glycosuria. The thirty cancers studied may be classified as follows: primary in the head of the pancreas, nine; in other portions of the organ, 4; secondary to gall bladder or ducts, five; to stomach, eight; to breast, one, and to uterus, one. Glycosuria occurred in but three cases; in two of which the tumor was primary in the head of the pancreas; concerning the third, no clinical or pathological notes were available.

The results of the histological examinations, especially as concerns the islands of Langerhans are more readily described under the following headings: changes in (*a*) the immediate neighborhood of the new growth, (*b*) at a distance from the tumor, (*c*) in cases with extensive involvement, but no glycosuria, and (*d*) in cases accompanied by glycosuria.

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*I take this opportunity to acknowledge my indebtedness to Prof. F. Marchand of Leipzig, Dr. Ludwig Hektoen of Chicago, Dr. F. B. Mallory of Boston, Dr. James Ewing of New York, Dr. W. G. MacCallum of Baltimore, Dr. W. T. Longcope of Philadelphia, Dr. M. Herzog of Chicago, and Dr. George Blumer, who have kindly placed material at my disposal.

(*a*) The important changes at the edge of the advancing cancer are the persistence and increase in size of the islands of Langerhans. While the glandular elements are invaded and replaced by the new growth and the newly formed connective tissue, the islands remain unaltered in the midst of the stroma, and occasionally, are even enclosed by a mass of tumor cells. Not only is this true of the edge of the tumor, but in the well infiltrated parts the islands may be seen in the stroma without remnants of acini. The increase in size of some of these structures is four or five times that of the normal islands. These giant islands are typical in structure and readily distinguished from small alveoli of cancer cells. They represent a true hypertrophy of the islands and not altered pancreas acini.

(*b*) The changes at a distance from the tumor depend apparently upon the location and size of the same. With a cancer of the head of the pancreas causing pressure upon the duct a chronic interstitial pancreatitis of severe grade always existed, which, with the exception of one case to be described later, was always of the interlobular type. The islands persist in the midst of dense connective tissue and are not invaded by it. This condition has been observed by Opie in several similar cases without glycosuria.

A tumor at the head of the pancreas not obstructing the duct does not cause chronic interstitial changes. Small tumors of any portion of the pancreas are unaccompanied by changes in the islands of the normal portion of the organ; on the other hand, if the new growth is of considerable size, definite hypertrophy of these structures is apparent.

(*c*) But two cases of diffuse involvement of the organ occurred in this series; in neither was glycosuria present. These are, however, not analagous to those discussed by Hansemann, for areas of normal pancreas could be found here and there, lying in the midst of the new growth. In such areas were large islands, several times the normal size.

(*d*) Three cases of cancer of the pancreas accompanied by glycosuria are included in this series. One of these could not be utilized in the present study because of lack of data; the gross description of the pancreas not being available and the histological study incomplete inasmuch as only the tumor had been preserved and a study of the uninvolved portion of the pancreas was therefore impossible. The second case, a primary cancer of the pancreas involving the head only and accompanied by a slight intermittent glycosuria with free fat in the stools, showed no changes in the uninvolved portion of the organ. The islands were few in number and the increase in size usually seen in the immediate vicinity of the new growth was not evident. The third case was one of cancer of the pancreas with advanced chronic pancreatitis of the interacinar type. Sugar had been present in the urine for several months before death. The entire length of the pancreas was fifteen centimetres; the proximal five centimetres occupied by the tumor, the remainder of the organ atrophied and indurated. Histological examination revealed a severe grade of chronic pancreatitis with small scattered groups of more or less altered acini. Within these, smaller strands of connective tissue had penetrated, involving to a varying extent, the islands of Langerhans.

While it is impossible to draw any definite conclusions from such a small number of cases, these observations are very suggestive and offer some support of the newer ideas concerning the anatomy and physiology of the islands. The persistence of the islands in the midst of the tumor stroma supports the theory of anatomical independence, an independence which I have recently definitely demonstrated by a study of their development.[11] This persistence is analagous to that described by Schlesinger,[12] Opie, Condon[13] and Pearce[14] in congenital syphilitic pancreatitis, and by Opie in various other sclerotic conditions of the organ. The increase in size of the islands suggests a purposeful enlargement due to increased function and therefore of the nature of a compensatory hypertrophy. A similar hypertrophy of these structures has been described by Warthin[15] and by Ohlmacher[16] in connection with cancer of the liver, and is considered by them, also, to be compensatory in nature, compensating, however, for the lost or limited liver function. The livers of my cases have not been available in all instances for histological examination, and I have not therefore been able to arrive at any conclusion concerning the relation of enlarged islands to lesions of that organ. It is possible that a relation of a compensatory nature may exist between the carbohydrate metabolism of the liver and the islands of Langerhans; but the hypertrophy of the latter structures when associated with cancer of the pancreas is, I believe, an attempt to compensate for the function of the lost islands.

The cases of diffuse cancer of the pancreas without glycosuria can be explained only on the supposition that the amount of normal pancreas remaining is sufficient to furnish the secretion necessary to carbohydrate metabolism. v. Mering and Minkowski found in their extirpation experiments that if one-fourth to one-fifth of the pancreas remained, diabetes did not result; a destruction of the pancreas by cancer we may consider analagous to partial extirpation. In both of my cases of diffuse cancer, small areas of pancreas containing islands could be found in the midst of the new growth in a sufficient amount to correspond to the unextirpated fifth. In this connection the possibility of an accessory pancreas (Thorel,[17] Sweet[18]) or other glands maintaining the balance of function must also be considered. v. Hansemann's explanation of the absence of glycosuria is not applicable unless we assume that all cancers of the pancreas arise from the cells of the islands of Langerhans.

Finally we have the cases with glycosuria. In one of these a true diabetes existed, in the other an intermittent glycosuria. The first is readily explained by the presence of an interacinar pancreatitis with involvement of the islands, a type of pancreatitis originally described by Opie in connection with diabetes and since observed by many investigators. It therefore appears that while cancer of the head of the organ with duct obstruction may frequently cause a chronic pancreatitis, glycosuria does not result unless the interacinar form with involvement of the islands develops. This naturally brings cancer diabetes into a common relation with pancreatic diabetes in general.

The case of intermittent glycosuria brings up the vexed question of alimentary glycosuria. It is well known that a normal individual may digest without disturbance from 150 to 250 grammes of sugar, but that an increase over this amount may lead to temporary excretion of glucose in the urine. This excretion, due to hyperglycemia, is the inevitable result of a sudden flooding of the circulation with an amount of glucose beyond that which the body is able at once to consume. On the other hand, in a number of abnormal conditions where there is no actual diabetes, an alimentary glycosuria may be produced by an amount of sugar which in the economy of the normal individual is easily consumed. Among the prominent conditions in which this occurs may be mentioned neuroses, traumatic or otherwise, organic nervous diseases, alcoholism, infectious diseases, exophthalmic goitre, hepatic and pancreatic disease. Is it not possible that this temporary excretion of sugar is due to some transient disturbance of the function of the islands brought about by vascular disturbances of the islands or by some toxic substance, perhaps of the nature of an autotoxin, affecting the secretion of these structures or temporarily throwing them out of function? In a destructive disease of the pancreas, as cancer, a certain number of the islands are necessarily destroyed; the remainder, however, may be sufficient under normal circumstances to furnish the necessary secretion, whatever it may be, essential to carbohydrate metabolism; but if overtaxed by an unusual injection of glucose, hyperglycemia and a consequent glycosuria might result. This explanation has occurred to me in connection with my case of cancer accompanied by intermittent glycosuria; and that it is not entirely hypothetical is indicated by the observations of Ssobolew,[19] confirmed by Herzog,[20] that in some cases of permanent diabetes the pancreas exhibits a great diminution in the number of islands, and in some cases, an entire disappearance. This deficiency, however, is far from proven, and in mentioning it I do not wish to be placed in the position of advocating a pancreatic origin for all forms of diabetes.

Conclusions—We have a definite basis for ascribing a certain portion of the cases of diabetes to lesions of the pancreas and ultimately to lesions of the island of Langerhans. As a result of the study here briefly outlined we can, I believe, include the permanent diabetes of cancer of the pancreas in this group. Further observations must be made before the intermittent glycosuria can be attributed to destruction of large numbers of islands. The absence of diabetes in cases of extensive involvement of the pancreas would appear to be due to the survival of small fragments of the pancreas including a sufficient number of islands to carry on their peculiar function. The persistence of the islands under the adverse conditions described supports the observation heretofore made concerning their anatomical independence, while their enlargement, suggesting as it does a compensatory hypertrophy, is corroborative of the theory that they have an independent special function.

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THE EXPERIMENTAL PRODUCTION OF LIVER NECROSES BY THE INTRAVENOUS INJECTION OF HAEMAGGLUTININS.*

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Introduction—This investigation was undertaken with the object of demonstrating experimentally that red blood corpuscles through the agency of agglutinins become fused together and form thrombi which occluding the vessels of the liver may lead to hyaline necrosis of liver cells. That these lesions might thus be produced, was indicated by observations made during a study of various cytolytic sera. In the course of an experimental study of nephrotoxins,[1] it was noted that focal necrotic lesions of the liver with associated hyaline thrombi frequently followed the intravenous injection of sera possessing considerable hæmagglutinative power, but did not follow the injection of sera devoid of this characteristic. Flexner's[2] communication concerning agglutinated red blood corpuscle thrombi, which had appeared but a short time before, suggested the possibility of these hyaline thrombi being composed of red blood corpuscles. A careful study of the lesions proved this to be the case, and a series of experiments was therefore at once begun for the purpose of establishing definitely the power of agglutinin to produce red cell thrombi and also to establish a relation between the thrombi and the necrotic lesions. Later, my interest in the subject was stimulated by the appearance of Boxmeyer's[3] work on the liver necrosis of hog cholera. Boxmeyer found that while one type of lesion was due to a plugging of the capillaries by endothelial cells, aided probably also by a direct action of the toxins upon the liver cells, another type could be explained only by the occlusion of capillaries by fused masses of red blood corpuscles (hyaline thrombi). Although he believed the fusion of these cells to be due to an agglutinin, he made no tests to demonstrate its presence.

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As far as I am aware no efforts have heretofore been made to demonstrate experimentally a relation between agglutinins and liver necroses. Focal necrotic lesions of the liver following the injection of cytotoxic sera have been described by Delezenne,[4] Kraus[5] and Fukuhara,[6] but in no instance has it been suggested that agglutinins were concerned in their production.

Methods—Hæmagglutinative sera have been prepared by injecting the rabbit with various organs and fluids of the dog.

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[1] PEARCE. An Experimental Study of the Nephrotoxins, *University of Penn. Med. Bull.* 1903, xvi, 217.

[2] FLEXNER. *University of Penn. Med. Bull.*, 1902, xv, 324.

[3] BOXMEYER. *Journal of Medical Research*, 1903, ix, 146.

[4] DELEZENNE. *C. R. de l' Acad. des Sciences*, 1900, cxxxi, 427, cited by SACH, *Biochem., Centralb.*, 1903, i, 616.

[5] KRAUS. *Verhandl. d. Deutsch. Path. Gesellsch.*, 1902, v, 58.

[6] FUKUHARA. *Ziegler's Beiträge*, 1904, xxxv, 434.

As the investigation was carried on simultaneously with another which had for its object the determination of the relative specificity of the somatogenic cytotoxins,[7] it has been possible to work with a large number of artificial sera. These include sera prepared by injecting defibrinated blood, washed blood corpuscles, blood serum, bile, urine and washed and unwashed liver, pancreas, kidney and adrenal. All these sera possess the power of agglutinating the red blood corpuscles of the dog in vitro; all, however, as will be seen are not sufficiently powerful to cause red blood corpuscle thrombi in the living animal. The sera was injected under ether anæsthesia, into the saphenous vein of the dog, and after varying periods of time the animals were killed by chloroform. The histological methods of examination include hardening in Zenker's, Müller's and Fleming's solutions; imbedding in celloidin and paraffin; and staining by hæmatoxylin and eosin, methylen blue and eosin, Mallory's connective tissue stain, Weigert's fibrin stain and safranin.

General Summary of Results—Liver necroses were readily produced by sera obtained by injecting bile, blood and blood containing organs; they did not occur after the use of sera prepared by injecting urine, serum and washed organs, except in one instance in which an exceedingly high dose of washed liver serum was administered. The power of these several sera to produce conglutinative thrombi and consequently necroses varies naturally according to the degree of agglutinating activity which they possess. While the most potent sera judging by the reaction in vitro and by the extent and severity of the lesions produced, are those prepared by injecting blood and organs containing a large amount of blood, as the liver and kidney, it is worthy of note that the agglutinative power does not depend entirely on this element, for sera almost as powerful were obtained by injecting bile which contains at best only blood derivatives. On the other hand the various sera prepared by injecting blood free fluids and organs as urine, serum and washed organs, while without power to cause sufficient agglutination in the animal body to bring about the formation of conglutinative thrombi, do cause distinct agglutination *in vitro*. The production of hæmagglutinins therefore would appear to depend on the same principles which govern the production of cytotoxins; that is, upon the similarity in part at least, of the receptor (chemical) composition of the various cells and fluids.[8]

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[7] Pearce. Concerning the Specificity of the Somatogenic Cytotoxins, *Jour. of Med. Research*, 1904, xii, 1.

The more powerful sera produce multiple liver lesions almost uniformly when administered in doses of 1:1000 to 1:500;[9] smaller doses (less than 1:1000) may produce necroses, but are usually without effect; large doses (1:500 to 1:300) usually cause death within a few hours. This last result, however, has occurred only with the use of sera produced by injecting blood and unwashed adrenal. In this regard it is of interest that the serum of an animal receiving blood in doses of 0.1 cubic centimeter is as powerful as that of animals receiving doses of five cubic centimeters. The serum of animals receiving washed blood is as potent as that of those receiving defibrinated blood. The power of unwashed adrenal serum to produce liver necroses was but slightly less than that of sera prepared from blood. Unwashed liver and kidney sera and serum prepared by injections of bile caused liver necroses in the same doses as did the above sera, but had no lethal effect. On the other hand, washed liver serum, the only one of this group (sera prepared from washed organs) to cause necroses, did so only when administered in very large doses (1:266), and had no lethal action. Heated sera suffered no loss of agglutinating power.

The necroses produced by these various sera develop in from twenty-four to forty-eight hours. They are usually widespread, closely massed and often confluent. The surface of the liver presents a mottled appearance; small, irregular, yellowish brown or greyish yellow non-elevated areas being sharply outlined by the deeply congested normal substance of the liver. When the congestion is intense the necrotic areas appear depressed owing to the swelling of the congested liver surrounding them, and fine points of hæmorrhage may be seen. On section the brownish yellow areas have a distinct hyaline appearance. The distribution of these lesions is almost always superficial; few necroses being found more than half a centimeter below the surface. When the distribution is not so diffuse, the more prominent lesions are at or near the free edges of the lobes and occasionally limited to the smaller lobes about the gall-bladder. All sera produce uniformly the same type of lesion, though not always the same degree of destruction.

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[8] For a consideration of this subject and also for a description of the cytolytic action of the various sera here mentioned see Journal of Medical Research 1904, xii, 1. Only the agglutinative action of the sera and the lesions produced in the liver will be considered in this communication.

[9] This method of indicating the dose refers to the relation between the amount of serum injected and the weight of the animal. Thus 1:1000 indicates that an animal weighing 5000 grammes received 5 c. c. of serum or 1 c. c. to 1000 grammes of body weight.

Histology—The necrotic lesion involves the greater portion of a lobule, often the adjoining portions of several lobules. Most frequently the necrosis is in the peripheral portion of the lobule, but occasionally the central zone is involved. The relation to the portal vessels is striking, the altered areas frequently entirely surrounding the portal vessels. The necrosis is hyaline in character, the cells stain poorly with eosin, thus being sharply marked off from adjacent unaltered cells. The nuclei may be fragmented, but more commonly are shrunken and irregular, and often fail entirely to take the stain. Leucocytic infiltration seldom occurs. The capillaries in the midst of these areas are tightly packed with red blood corpuscles. In some capillaries the cells are loosely arranged, but in others homogeneous more or less cylindrical cast-like masses of coalesced cells are seen. The endothelium of the capillaries is usually unaltered and accumulations of endothelial cells do not occur. An occasional endothelial cell or polymorphonuclear leucocyte may be found in the midst of these masses, but are never present in considerable numbers. In the smaller portal veins adjacent to the necrotic areas larger ovoid or coalesced masses are seen. These may entirely fill the vessel, though usually a few loose red cells may be found at the periphery. The appearance of these masses is not constant. All contain granular and hyaline areas; in the majority the centre is granular and the periphery hyaline, but frequently this arrangement is reversed. In some, the transition from normal corpuscles to irregular, distorted or varicose corpuscles and finally to hyaline and granular masses may be seen. The hyaline areas upon close examination may be resolved into a tangled mass of irregular varicose threads, representing apparently greatly distorted and elongated corpuscles. Adherent to the walls of the larger vessels distinctly hyaline masses with stalactite-like processes may occasionally be seen. These are apparently of the same origin as the smaller thrombi. Fibrin does not enter into the formation of these thrombi, though the detection of finer threads of fibrin is rendered difficult by the tendency of the altered corpuscles, especially after Zenker hardening, to take the fibrin stain. Fibrin threads may occasionally be found at the periphery of the larger thrombi, but I have never seen them in connection with the smaller plugs.

Taking advantage of the fact that an interlobular vein supplies adjacent portions of several lobules, it has been possible, especially in serial sections, to demonstrate a relation between a thrombus of such a vein and necrosis of the peripheral portions of the lobules in direct relation to it. Also in areas of extensive necrosis involving all but the hepatic vein zone of many lobules, the portal terminals were found uniformly occluded. While it is possible for the capillary thrombi within the lobule to cause necroses the more important plugging occurs, I believe, in the perilobular veins or the branches from which they originate. The anatomical relation of the agglutinated corpuscles to the lesion, in the absence of bacteria, phagocytic cell or fibrin thrombi, conclusively indicates that the necroses are due to this obstruction of the smaller veins.

In some animals dying within a few hours after the injection of large amounts of serum (1:400 to 1:500) an extraordinary condition consisting of extreme congestion of the vessels and disorganization of the liver cells was found. Vessels of all sizes were widely dilated and filled with agglutinated corpuscles, while the pressure exerted caused a narrowing of the columns of liver cells with more or less displacement. In one instance the pressure was so great that complete disorganization of the liver substance had occurred. This destruction was so extreme that the histological picture, large sinus-like spaces separated from one another by this compressed and irregularly arranged columns of hepatic cells and filled with closely packed agglutinated and more or less distorted red blood corpuscles, was most suggestive of a cavernous angioma with thin trabeculæ. In this early lesion the liver cells stained poorly, but no distinct necroses were found in animals dying within eighteen hours. The smaller doses, less than 1:1000, on the other hand, never produced changes in the liver other than an occasional slight congestion.

In connection with these lesions the following questions naturally occur. Why do not similar extensive thromboses occur in other organs? Why do necroses occur almost exclusively at the periphery of the liver and why are they limited practically to the portal area? Capillary thrombi do occur in other organs, especially in the glomeruli of the kidney, the periphery of the lung, in the adrenal and in all these locations they may be accompanied by minute hæmorrhages. Their occurrence is, however, infrequent and unaccompanied by necrosis, except possibly in the glomerulus of the kidney. That they do not occur more frequently is probably due to peculiarities in the circulation in the various organs. It is possible that the slow circulation of the portal system allows the formation of larger masses of agglutinated corpuscles than could form in the rapid flow of the other organs; while on the other hand the narrow capillaries of the liver are more readily occluded. The first of these factors would also explain the greater frequency of the lesion in the portal vein area of the lobule. The more frequent involvement of the superficial portions of the liver can only be explained by Boxmeyer's assumption that the blood supply of this portion of the liver is less complete, and the collateral circulation less perfect than in the deeper portions of the liver.

Attempts to Demonstrate the Mechanical Nature of the Thrombosis.—As the sera, with one exception, used in these experiments was hæmolytic, and as several possessed other cytotoxic constituents, it became necessary to rule out the direct action of these cytotoxins upon liver cells and also the possibility of an obstruction of the circulation by the remains of hæmolysed red blood corpuscles. Several observations bear on this point and support the theory of mechanical obstruction by agglutinated corpuscles. In order to definitely determine that an agglutination similar to that seen *in vitro,* takes place in the circulating blood of an animal receiving an agglutinative serum, the blood of a dog was examined four minutes after the injection of serum in the dose of 1:350. Blood taken quickly from the heart, the superior vena cava, and the cut surface of the liver, and diluted with salt solution showed abundant coalesced masses of red blood corpuscles. Upon standing, a light jelly-like clot formed with a supernatant fluid containing distinct agglutinated masses not readily disintegrated by agitation. Microscopically these masses, which varied in size, were seen to be composed of from twenty to seventy or more red corpuscles many of which were distorted or elongated and often so fused together as to be indistinguishable one from the other. In another instance twenty-four hours after injection (dose 1:985), masses of the same character were found in blood from the cut surface of the liver. Here the cells were so fused together that the outlines of individual cells could not be recognized.

That agglutinin alone is the important factor in producing these necroses is shown by experiments with serum prepared by injecting bile. This serum, while powerfully agglutinative, unlike the other sera used, has no hæmolytic power. It causes, however, in doses of 1:700 widespread lesions of the liver similar to those described above. Attempts to render other sera hæmolytically inactive by heating have been unsuccessful. Animals receiving such sera develop hæmoglobinuria and the renal changes which usually follow the administration of a hæmolytic serum, as well as typical liver lesions, the result of the action of the agglutinin.

As a somewhat imperfect test[10] of the mechanical nature of the thrombosis, attempts were made to produce necroses by injecting agglutinated masses of red corpuscles freed of the excess of immune serum by repeated washing. These masses were prepared by agglutinating dog's blood *in vitro,* and washing hastily in several changes of salt solution. Agglutinated masses, thus prepared, injected into the mesenteric vein in doses of five to ten cubic centimeters seldom produce necroses and those which do occur are not of the same type or so numerous as those produced by the injection of agglutinative serum. They represent the type of granular necrosis with nuclear fragmentation rather than the hyaline type and are very few in number. Associated hyaline thrombi were found only occasionally. In all these experiments the spleen contained a very large amount of altered blood pigment, indicative of the fate of the injected cells. I consider the results of these experiments to be of little significance one way or the other, for the injection of five or ten cubic centimeters of agglutinated corpuscles, an amount readily destroyed in the animal, is in no way comparable to the extensive agglutination resulting from the cumulative action of ten to twenty cubic centimeters of agglutinative serum.

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[10] This condition of this test is not perfect, for the haemolytic amboceptors of the serum are of course fixed by the red corpuscles.

Various controls as the injection of defibrinated normal dogs blood, washed hæmolyzed dogs corpuscles, the blood and the clear serum of dogs in which the liver lesions had been produced, and normal rabbits serum have been uniformly negative.

Effect of Repeated Injections.—The severity and extent of the lesions produced by the injection of agglutinative serum suggested the possibility of producing, by repeated injections, conditions analagous to acute yellow atrophy or the more acute forms of cirrhosis. With this object several animals have received serum intravenously at intervals of one to three weeks. Thus far no permanent lesions have been found in animals which have been killed at the end of seven weeks after receiving three injections. Indeed, from a study of the liver necroses in a small number of animals which have been allowed to live more than a few days, there is very distinct evidence that these lesions are completely repaired. The observations upon this phase of the subject are, however, too few to warrant a definite statement at this time.

May Agglutinins be a Factor in the Production of Liver Necroses in Man?—In considering this question it is not necessary to go into the general literature bearing upon the etiology of liver necroses. That these lesions may be produced by the direct action of bacteria (B. tuberculosis, B. pestis, and the pyogenic cocci) is well known. Mallory[11] has shown very conclusively that they may be due also, especially in typhoid fever, to occlusion of the capillaries by clumps of phagocytic endothelial cells with or without associated fibrin coagula. That a strong toxin in the circulating blood may produce the so-called central necroses is also indicated by his investigations. There remain, however, many focal necroses which cannot be satisfactorily explained. Associated with such are frequently found capillary thrombi described as hyaline or fibrinous. It seems probable that these, in view of the facts set forth in this communication, may be agglutinative red blood corpuscle thrombi and the essential element in causing the necroses with which they are associated. Flexner and Boxmeyer working independently came to the conclusion that the so-called hyaline thrombi were composed of fused red blood corpuscles. Flexner found such thrombi in the intestine of typhoid, the stomach of carbolic acid poisoning and in broncho-pneumonia; and in the rabbit produced them experimentally by the injection of agglutinating substances as ricin, ether and dog's serum; Boxmeyer found them in the liver necroses of experimental hog cholera. It is significant that the latter could readily distinguish necroses due to such thrombi from those due to phagocytic cell thrombi. Many of those who have studied hyaline thrombi, state that they are composed of fused and altered red blood corpuscles, but do not explain the mechanism of the fusion. Ziegler's[12] opinion that they are formed largely from the colorless elements of the red blood cells, is of interest in view of our newly acquired knowledge of agglutination and hæmolysis.

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[11] MALLORY. *Journal of Exper. Medicine*, 1898, iii, 611; *Journal of Medical Research*, 1901, vi, 264.

In attempting to bring agglutinative thrombi into relation with liver necroses in man it is necessary to explain the origin of the agglutinin. The possibility of its development as a bacterial product in the course of infectious diseases, naturally suggests itself. It is well known that a considerable number of bacteria produce hæmolysins, and it has been demonstrated that a few produce also hæmagglutinins. This agglutinating power is possessed also by several poisons not of bacterial origin. In this connection it is significant that most of the conditions in which hyaline thrombi have been described are of bacterial etiology as hog cholera, typhoid fever, broncho-pneumonia, diphtheria and infections with the pyogenic cocci; or intoxications as poisoning by ergotin, corrosive sublimate, carbolic acid, ricin and abrin. Of considerable interest in this connection is Flexner's reference to the occurrence of agglutinative thrombi in the liver lesions of eclampsia. The occurrence of hyaline thrombi in the vessels of the rabbit's ear, after freezing, points also to an injury of red cells leading to agglutination.

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[12] Ziegler. *General Pathology*, Eng. Ed., 1899, p. 122.

It seems probable that the application of experimental methods may demonstrate that agglutinins may be formed in various infectious and toxic conditions in sufficient quantity to cause agglutinative (hyaline?) thrombi with the development of liver necroses and possibly other lesions. Experiments, now in progress, with the products of antolyzed bacteria indicate the presence of such a body in sufficient amount to produce agglutinative thrombi.

A DESCRIPTION OF PROF. THEODOR KOCHER'S CLINIC AT BERNE, SWITZERLAND.

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The Insel Hospital, located in Berne, Switzerland. was built some years ago by the Canton of Berne as a General Hospital for that section of the country. Its plan of construction is that of a pavilion hospital, each separate department of which is, however, unconnected with the others or with the administration buildings. The buildings, chiefly of two stories, are constructed of brick and are arranged largely about a hollow square in spacious grounds somewhat removed from the centre of the city. Patients are received here for treatment from all parts of the Canton of Berne, being referred to the special hospital department which their disease requires. The departments found here are the usual ones for Surgery, Internal Medicine, Gynecology, Diseases of the Eye and Ear, of the Nose and Throat, of the Skin, and of the Mind and Nervous System. Also there are found special departments in Pathology, Bacteriology, Biological Chemistry and Roentgen Ray. The entire hospital affords accommodation for about one thousand patients and hence furnishes excellent and abundant clinical material for the Medical Department of the University of Berne, which enjoys a very enviable reputation.

The surgical division of this large hospital is under the sole direction of Dr. Theodor Kocher, by reason of appointment by the National Government of Switzerland. Dr. Kocher is also Professor of Surgery in the University of Berne and delivers his lectures every morning save Wednesday and Sunday at eight o'clock in the amphitheater of the surgical pavilion. To recall his name to the mind of the surgeon is but to mention Kocher's method for reduction of shoulder dislocation, and Kocher's *Operative Surgery.* This surgical pavilion is built in the form of the letter T. The base constitutes the lecture room, operating rooms, and laboratory, all of one story. The upright part is a hallway connecting the operating building with the ward building. This latter building is of two staries and has therein four large wards, each of some twenty-five beds in capacity, making a total of some one hundred beds devoted entirely to surgery and under the sole direction of one man.

The lecture room or amphitheater is fashioned somewhat after that in the Albany Hospital, though on a slightly smaller scale, with entrances from either side and from the front into the pit. The students enter from the rear and midway in the four rows of semi-circular seats is a large window reaching from floor to ceiling, in front of which is a table utilized by the clinical assistants. A large number of the students are women, and many of these are Russians, as women are not permitted to study medicine in Russia. They all occupy the rows of semi-circular seats, while the visiting physicians, always in considerable number, sit to the front and on one side of the pit, and the assistants and voluntaries have seats at the opposite side. From the front of the pit a door leads out to a waiting room, with an adjacent room on either side. From one side of the pit two doors lead out, one to the large semi-private operating-room, through the sterilizing-room; the other directly into a small semi-private operating and wash-up room. Two doors also lead out from the other side of the pit; the first to a small waiting-room and thence to a chemical laboratory and museum; the second through an etherizing room to a second small semi-private operating room devoted to septic cases.

The sterilizing room is lined on one side by a row of shelved closets containing sterile ligatures and sterile dressings. On a second side are the instrument cases; while the third side, that separating the sterilizing room from the large operating room, has the sterilizers set directly in the wall so that they are filled from this, the sterilizing room, while the articles are removed only by means of the doors opening into the large operating room wall. The sterilizers include a large autoclave, run at a pressure of forty-five pounds; a sterilizer for normal salt solution; one for hot, and another for cold water; a pan sterilizer for instruments, and a larger one for basins and such other utensils as are employed in the operations.

The large operating room is about forty feet square and is well-lighted by means of a double glass skylight in the ceiling, about ten feet square, and by large windows on two sides of the room. Between the double glass in the skylight are two canvas shades manipulated by ropes from without the room. Also, there are twelve small electric bulbs herein; while some four or five other bracket lights are on the sidewalls. At one side is a small tier of platforms with rails, accommodating about twenty spectators. Before this tier the operations usually take place. The floor of this room is of terrazio, a common flooring material in the hospitals of Europe. The walls are wainscoted with tile for six or eight feet and from thence to the ceiling are hard-finished and painted with enamel. There are no sewage fixtures in the room and practically everything can be moved about. There is an operating table having a large hot water tank of copper for its bed; two or three other very elaborate operating tables; several small tables for basins and other aseptic metal fixtures which usually are utilized in such rooms.

The smaller operating rooms contain simply an operating table, while in one of them is a long trough with patent faucets. This latter room is used as the wash-up room for hand-sterilization by the operator and his assistants.

The museum and laboratory contain simple facilities for such work as does not encroach upon the larger and separate pavilion devoted to special research. The museum contains an exceptionally fine collection of articles showing the penetrating action of bullets of various caliber; and also an excellent assortment of bullet wounds of various bones very beautifully mounted. This material is used by Professor Kocher in demonstrating his course on military surgery, which he gives each summer to the governmental army surgeons under decree of the government.

The wards are light and cheery and each has a commodious piazza at one end, allowing convalescent patients to take sun baths and to be in the open air most of the day. Over each bed hangs a small blackboard for recording temperatures, pulse, etc., of the patient. These records are made with chalk, thus doing away with a more elaborate system of record charts.

This surgical pavilion, while an entity by itself, has nevertheless its intimate connections with the pathological, bacteriological, Roentgen ray and other departments, so that a patient has the fullest examination made of his case; and the surgeon can follow the case even to the end. As no gynecology is done in this pavilion, being a department in itself, one has to expect nothing but pure surgery. To care for this surgical pavilion Professor Kocher has four assistants, among them his own son, and several voluntaires who reside outside of the hospital. These assistants care for the cases from the time of entrance into the hospital until the patient leaves, taking complete histories, making the necessary notes at Professor Kocher's dictation during examinations or operations, and filing the various other departmental reports in addition to their regular duties as operating assistants.

The nursing of the patients is cared for by some twenty-nurses most of them of some years' experience, as there is very little call for private-house nursing in Europe each prominent physician maintaining a private hospital of his own.

From this description it will be seen that there are complete teaching facilities combined with hospital accommodations, conveniently situated under one roof.

THE CLINIC

Beginning promptly at 8:15 A. M., Professor Kocher frequently demonstrates to the class pathological specimens, either the result of autopsies or operations upon patients previously presented clinically. In these demonstrations he is particularly careful in his personal management of the specimens, so that his bare hands do not come in direct contact with them. For this purpose he invariably dons rubber gloves before handling the specimens and has these gloves removed each time after use by a nurse in such a manner that he does not touch their outer surface. The microscope is also frequently utilized either with smears from active cases or cultures, and in viewing sections from pathological specimens.

These demonstrations are particularly interesting, both from the standpoint of pathology and bacteriology, and of operative surgery, and are hence very complete in character. Frequently they are amplified by freehand blackboard drawings, by plates, models and by X-Ray negatives.

Following these demonstrations, which usually last for some thirty minutes, a small group of post-operative cases is presented during which the special features of the case with relation to symptoms, diagnosis and the operation with its difficulties are fully discussed, as well as the manner of wound closure, details of dressing and progress of the case. For this part of the clinic a half hour is also allotted, allowing the balance of the two hours to be given up to the presentation and demonstration of cases for diagnosis.

In this latter part of his clinic, two students are summoned for each case; to question, examine and carefully inquire into the nature of the patient's trouble, and during these examinations Prof. Kocher himself frequently asks questions or assists them in their work or points out their errors finally reading the history of the case.

After the actual teaching part of the work come the operations before the visiting physicians and a section of the class. These are performed always in the large operating room adjoining the clinic room.

TECHNIQUE

Patients receive a careful bath the night before the operation. The field is then shaved and prepared by thorough scrubbing with green soap and tap-water, applied with a stiff brush for ten minutes. This lather is then thoroughly rinsed off with sterile water, following which a sterile assistant applies seventy-five per cent. alcohol with sterile gauze, rubbing the area until the skin reddens. Then plain sterile gauze is placed over this area, or a green soap poultice applied, and the whole is covered with sterile towels held in place by a gauze bandage.

On the morning of the operation, just after the patient is placed on the table, a sterile assistant again rubs the area with seventy-five per cent. alcohol, followed by pure ether, for a few moments.

These assistants are divided into two groups, designated as the septic and aseptic group. Seldom does an assistant from one group do work outside of his assignment. Each group has its regulations as to hand sterilization and these are best illustrated by the following rules, which have been somewhat shortened, and which in printed form, are hung in the wash-up room.

Rules for Sterilizing the Hands

1. Remove all collars and cravats. Bare arms to above the elbows. Put on rubber apron and gum shoes.

2. Trim finger-nails until the space under the nail is laid entirely free.

3. Rub entire face and neck with moist sterile gauze.

4. Rinse mouth, throat and nose thoroughly with a two per cent. carbolic acid solution.

5. Cover head with sterile cap.

6. Rub hands and forearms with green soap and wash in running (tap) water for five minutes.

7. Scrub hands and forearms and every finger for ten minutes with glycerine or soft soap with a brush taken from the 1-1000 sublimate solution. When finished replace brush in the solution.

8. Wash soap away in running (tap) water. Then with another brush scrub the skin well, and every finger and nail-fold carefully with seventy-five per cent. alcohol, for five minutes.

9. Wash hands in sterile water, dry with sterile gauze, or put on lisle-thread white gloves, or rubber gloves, and don aseptic gown over rubber apron.

General Rules

1. In aseptic operations all assistants must wear lisle-thread white gloves or use bare hands. In septic cases all assistants must wear rubber gloves.

2. All wounds, eczema or pustules, on hands, arms, face or neck of assistants are to be treated by the thermo-cautery or iodine; or protected by rubber gloves or armlets from the field of operation.

3. Between two aseptic operations it is only necessary to wash the hands with sterile water and alcohol.

4. If the hands are unexpectedly soiled during the presumably aseptic operation, either by pus, faeces, secretions from mucous membranes or skin, brush them immediately in one per cent. lysol solution, or in warm soap water; and follow with the usual water and alcohol.

On the day of operation the patient is placed on the table and undergoes the final cleansing. He is then securely fastened to the table by means of a broad strap passing over the knees and under the table and by wristbands which pin his arms down to each side of the table.

In operations upon the face or neck the head is placed on a hard pillow or raised by means of elevating the head of the table.

A semi-circular rod is then fastened across the head of the table in such a manner that when covered with a sterile sheet the patient's view of the field of operation is cut off. This sheet is pinned partly around the anesthetist and thereby forms a sterile shield between the latter and the operative field.

Following these preparations the field of operation is uncovered and immediately a sterile sheet, which has a hole cut in its centre large enough to overlie the required area for work, is thrown over the patient. Save for this hole the entire body and operating table is then covered with sterile sheets and these are fastened about the operative field by means of special clamps.

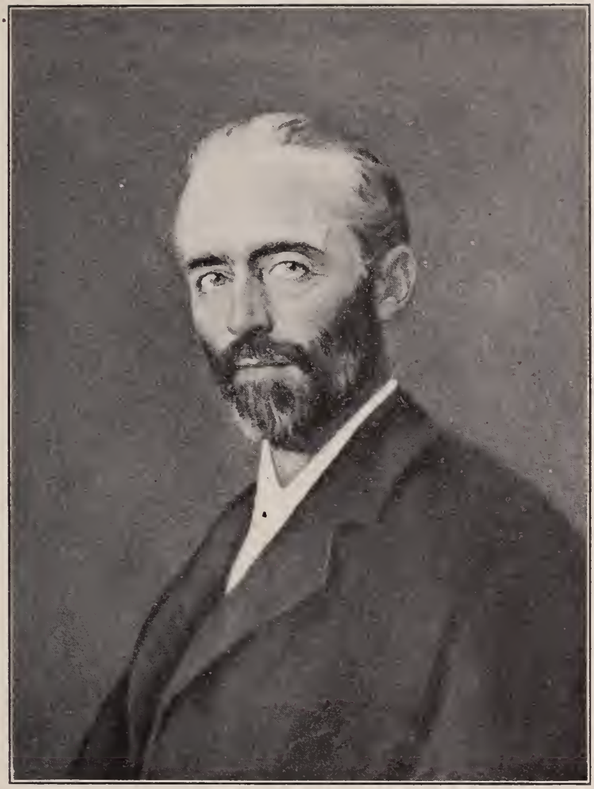
ANESTHESIA

After the usual preparation of patient and assistants as noted above the general anesthetic is administered in the presence of all usually by a nurse, or trained lay assistant, or by one of the voluntaires. Rules also are prescribed for this as follows:

RULES FOR GENERAL NARCOSIS

1. The patient should not have food before anesthesia. The abdomen, both stomach and intestines, must be empty. May give the patient one-half hour before anesthesia, especially to alcoholics, a cup of tea with a little brandy therein. In emergencies empty the stomach by the stomach tube. See that the rectum and bladder are empty.

2. Breathing must be unrestricted. Hence remove false teeth, loosen constricting clothing and place head and chest in a comfortable position. Always direct the patient to breathe deeply and naturally. *During* narcosis, to prevent the tongue falling back into the pharynx, place head on one side (preferably the left) and push the inferior maxilla forward.



THEODOR KOCHER

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3. To avoid anemia of the brain, raise the lower part of the body and the legs to a higher level than the head, and thus encourage venous return to the heart.

4. Begin narcosis in grown people with ethyl-bromide, then follow with ether. In small children give only ether.

5. Pour 15-30 grammes of ethyl-bromide on a face mask and, without loss of time, place the mask over patient's mouth and nose. Direct patient to breathe deeply. *Do not entirely exclude air!*

6. As soon as the patient becomes peaceful (within one minute) pour 20-30 grammes of ether on the ether mask and adjust this to the face without interruption, at the same time laying aside the ethyl-bromide mask.

7. Add ten grammes of ether, in the beginning at frequent intervals, until absolute unconsciousness occurs. From this time on small quantities of ether frequently poured on the mask, and intermingled with air, will suffice.

8. Rattling in the throat, or difficult breathing, indicates that the patient has received too much ether, or that the intermixture of air has been interfered with.

For all goitres, plastic operations on the face, removal of small and quite superficial tumors and in some abdominal operations, a sterile solution of cocaine is used. This solution varies from one-tenth per cent. to one per cent., the weaker being used for subcutaneous and muscular infiltration in large quantities, while the stronger solution is utilized in small portions only for skin infiltration.

Ligatures and Sutures

Professor Kocher uses only very fine silk in most of his operations. In cases where stronger material is indicated he doubles or triples these strands as occasion requires. This silk is sterilized simply by boiling in water for fifteen minutes.

Occasionally, and only in septic cases, he uses catgut, but prefers to do without it if possible. He also uses silver wire sometimes where extra tension is present in abdominal cases.

Drainage

In the matter of drainage, glass perforated tubes are used in the smaller wounds, while rubber tubing is utilized for larger areas.

Dressings

In general these are of the simplest. In aseptic cases a thin layer of narrow xeroform gauze is placed directly over the incision after closure. Covering this is a second layer of plain gauze, by a small margin overlapping the xeroform gauze. The whole is then sealed with a plentiful coat of collodion. This is only removed at the end of a week.

In septic cases a usual dressing is that of gauze directly over the wound backed by cotton, or of pads, such as are used in the Albany Hospital. These are changed on the third day or as occasion requires.

The usual stay of patients in the hospital is about two weeks; but in the thyroidectomies this time is curtailed to a week, allowing the patients to get out of bed on the third or fourth day.

A Clinical Day

Demonstration of a Specimen of Pyonephrosis with Patient.— The pathological specimens exhibited on one of the days in which I attended the clinic were very interesting; chief among them was a right kidney removed for pyonephrosis due to a colon bacillus infection. This specimen showed plainly a hydronephrosis of some considerable duration, by reason of the size and number of the suppurating cysts. The pelvis of the kidney was opened after removal and contained more than a liter of pus. There were also five to ten other small cysts the size of English walnuts, located in the cortex of the kidney, which had not as yet been opened and which did not communicate one with the other. Most of the kidney substance had been obliterated, there being only occasional patches visible macroscopically.

After a discussion of the specimen, the patient, a woman, aet. about forty-five, was wheeled in on her cot although it was only the second day following the operation.

A description of the operation and its attendant danger was next given; a curvilinear incision over the right lumbar and iliac regions about fifteen centimeters long, directly down upon the kidney; the clamping of the pedicle; ligation of the vessels and ureter on either side and severing of the pedicle with the Paquelin cautery; removal of the mass without opening the sac or infecting the cavity; the closure of the wound with silk, and absolutely without drainage; the application of but a light xeroform and gauze dressing held in place by collodion; and the patient's general condition.

The chart showed no rise of temperature and no increased pulse rate following the operation and the appearance of the patient, especially the wound, was excellent.

Post-operative Cases.—Following this patient, several post-operative cases were exhibited. First came two cases of thyroidectomy for goitre, operations having been performed in the previous week. Save for a usual rise in pulse during the first forty-eight hours the cases were in excellent condition and were pronounced well enough to go home. Both of these cases showed absolute closure of the wounds by primary union with but a slight linear scar and there was no interference with phonation or deglutition.

In connection with these cases Professor Kocher modestly stated that he has records of over 2,700 cases of goitre, all extirpated by himself and that his last death had not occurred since about the 2,650th case. Most of these cases are done under local anesthetic. This hospital is celebrated for its goitre statistics and for the results obtained surgically, as it averages more than one operation a day, the material coming mostly from the Lauterbrunnen Valley and the Bernese Oberland Alps nearby.

Next was shown a case of excision of the rectum in a woman, aet. fifty, for carcinoma. The operation had been done through a perineal incision, pulling the rectum downward as the operation progressed and also removing a greater part of the recto-vaginal septum. The wound was practically healed and Professor Kocher stated that the next thing to be done was a plastic operation for the restoration as nearly as possible of the normal anatomical structures.

Cases for Diagnosis.—Thirty minutes of diagnosis work by the students followed. For each case two students were summoned from their seats and directed to proceed with an examination of their case as they saw fit, being aided in their endeavors in every way.

A Case of "Thyroiditis Acuta."—The first case was the most interesting and I give the history in full as there have been reported in the literature only ninety-five cases, and one of these presented itself in the Albany Hospital about one year ago (1903).

The patient, a male, aet. fifty-two, a farmer, residing in the Bernese Oberland, had come to the hospital on the previous day complaining of an acute general and diffuse swelling of the anterior portion of his neck, associated with an irritating cough, difficult breathing, some cyanosis, and slight changes in phonation all of which had presented within the last three weeks.

Family History was negative, save for several cases of goitre, the almost universal disease of the locality.

Past History was also negative. Especially had the patient never suffered from thyroid trouble, and had never had an injury in this region.

Present Illness elicited the facts that three weeks previously, without any known cause, the patient had experienced a severe chill and in a few hours noticed a swelling aver the manubrium, coupled with fever, loss of appetite, hoarseness, and inability to work. The chills recurred at irregular intervals and the swelling kept increasing in size until his admission to the hospital. For the last ten days he had suffered severely when swallowing, had some hoarseness on phonation, an irritative cough, and could not lie prone, of necessity having to assume a semi-recumbent position.

Physical examination revealed a tumor extending from the point of the chin to the root of the neck and laterally separating the margins of the sterno-cleido-mastoid muscles to a great degree. This mass showed a slight fluctuation over the thyroid region, and moved some with the act of deglutition.

A diagnosis of thyroiditis acuta was made and an exploratory aspiration with a large hypodermic needle by one of the students demonstrated the presence of pus. This was immediately stained by the bacteriological assistant and the presence of streptococci demonstrated.

An operation was advised and accepted and later in the morning was performed.

Bilateral Scrotal Herniae; Hydrocele; Carcinoma.—The second case discussed was a carcinoma of the glans penis in a male, aet. 68, complicated with bilateral scrotal herniae, and a hydrocele of the left cord.

The patient was carefully questioned as to the probability of an injury or continued irritation which might have caused the carcinoma, but his family and past history were both absolutely negative.

After deciding as to the nature of the growth, Professor Kocher delivered a short dissertation on the causes of carcinoma of the penis, profusely illustrated with blackboard demonstrations. .He advised the patient to submit to an operation and this advice was gladly accepted by the patient and a later hour in the day was set for the same.

Dilatation of Stomach; Pyloric Ulcer.—Thirdly was shown a case of dilated stomach due probably to an ulcer at the pyloric end causing a stenosis, in a young man of twenty-two. He had been troubled for about a year and had been constantly under the care of his family physician and latterly had experienced two severe hæmorrhages; and since the last one some three weeks previous, he had been on a severely restricted diet. Physical examination showed a greatly dilated stomach and a large retention, the dullness on percussion extending to two or three inches below the umbilicus. The stomach tube was then utilized, with careful descriptions as to its use, and the stomach emptied, removing some two and one-half liters of fluid. The tube was left in the œsophagus, a bulb for inflation was attached and the outlines of the stomach were very plainly shown after inflation.

These three cases were then taken to the wards and prepared for immediate operation, as previously described and the clinical features of the day were ended save for the invited guests.

OPERATIONS

About fifteen of the visiting physicians and students who had been present at the clinic were invited to remain and to witness the operations in the large operating room.

Before adjourning thither several of the visiting physicians had the pleasure of seeing the thyroid abscess opened, in the small septic operating room. After placing the patient on the table and properly arranging the sterile coverings, a slight skin incision was made, just enough to draw blood, over the most fluctuating part of the swelling; then the cocaïne was injected subcutaneously.

The incision was then carried down into the abscess by means of the Paquelin cautery-point. In this manner the abscess was opened and about a liter of pus evacuated. The cavity was then washed out thoroughly with a two per cent. carbolic acid solution; a light packing of xeroform gauze inserted and the wound covered with an abundant gauze and cotton dressing.

The patient was then placed on his cot in a semi-recumbent posture and wheeled to his ward.

Thyroidectomy.—The first case presented in the large operating room was one of goitre. The patient, a woman of thirty-seven, was wheeled in and placed on the operating table and the knee and wrist fastenings applied.

A large semi-circle of wire was then inserted in the table near the head, on a line drawn across the patient's neck and a sheet was thrown over this wire, thus cutting off the patient's view of the operators and visitors. This sheet was then covered with a sterile sheet and the whole was gently pushed up over her face till the sterile bandage covering the field of operation was exposed. This bandage was then removed and over the remainder of the patient's body, as well as the operating table a large sterile sheet was thrown.

A sterile assistant completed the asepsis of the part exposed by a vigorous rubbing with alcohol and ether. The usual slight skin incision was made in crescentic shape over the tumor and the cocaïne solution injected. Professor Kocher then cut straight down upon the capsule of the gland, paused, and removing his white cotton gloves began the extirpation at the superior and posterior part of the tumor, ligating the superior thyroid artery. By gentle traction forward he brought the communicating branch almost into the wound and then ligated and severed it. He then gently pulled the whole mass downward toward the manubrium and thus loosened somewhat the stress on the inferior thyroid artery and the recurrent laryngeal nerve.

With his left thumb and forefinger he established the location of the artery and passed a ligature around it, then gently pulled on the ligature, before tying, and had the patient say, "Ah!" by this means determining that the nerve was not enwrapped by the ligature. He then tied the ligature and severed the vessel. The mass was then rolled out on the manubrium, the few remaining smaller vessels were caught, severed and tied, and the operation was thus really finished in about twenty minutes. This is the usual time in the simpler cases, and the patient practically endures no pain other than that occasioned in differentiating between the artery and the nerve.

A short glass drainage tube was placed in the lower aspect of the wound, the incision was closed with fine silk sutures and a dressing of gauze and cotton was applied, held in place by gauze bandages. The patient, as in the previous thyroid case, was placed in a semi-recumbent position on her cot and wheeled into the ward.

Gastro-Enterostomy with Murphy Button.—Next was brought in the young man with a dilated stomach. After properly fixing him on the table a superficial skin incision about nine centimeters long was made in the mid-line of the abdomen between the ensiform cartilage and the umbilicus, and the cocaïne solution used in large quantities throughout the surrounding tissues and deep into the muscles. The incision was then carried down into the abdominal cavity. The anterior wall of the stomach was pulled into this incision and half a Murphy button inserted and fastened with a purse-string suture of fine silk and the whole was isolated and covered with warm damp gauze.

The first part of the jejunum was next delivered into the incision and a transverse incision made therein. Into this latter incision the other half of the button was fastened as in the stomach. The two parts of the button were then brought together and locked and the whole mass was replaced into the abdomen and the wound closed, without drainage, by means of through and through silkworm gut sutures. The usual dressing in such cases of a strip of xeroform gauze covered by collodion was applied and the patient was removed to the ward.

A Plastic Operation for Restoration of the Inferior Maxilla.—The third case, and the last to be recorded, was exceedingly interesting. Some three months previous Professor Kocher had extirpated a sarcoma of the lower jaw at the mental prominence, from this patient, a girl of twenty-three. By reason of the infiltration of the tumor the bone had been excised for about one and one-half inches on either side of the mid-line.

The case had progressed very favorably and the operation proposed was to freshen the edges of the remaining bone and replace the lost portion by wiring a fresh piece in its place.

The old wound was reopened under ether, the edges of the bone freshened, holes were bored in the ends and the wound then covered with warm damp gauze. A portion of the skin over the anterior superior spine of the right ilium was then prepared aseptically and an incision was made down to the ilium, from which a section measuring about 7 cm. x 2 x 1 cm., was chiselled off and given a curve suitable to fit into the maxilla. This bit of bone was carefully denuded of all muscle and holes were bored in each end. It was then inserted in the maxilla to replace the lost portion and was wired in.

The wound was closed with silk sutures, after insertion of a small glass tube for drainage and a dressing of gauze and cotton applied.

In addition to these four cases outlined as above, there were also operated on in succession the case of carcinoma of the penis, in which an amputation was done; a case of tuberculosis of the left ilium and sacrum, wherein a large part of the ilium and the lower part of the sacrum was removed; a plastic operation on the mouth for carcinoma; and a wiring of the left clavicle to repair a recent fracture.

All but three of these cases were done by Professor Kocher, assisted by his son and Dr. Ellsasser. The other three cases were performed by others of the assistants under Professor Kocher's immediate supervision.

Editorial

> Suppose now bloodshed added to folly—the sword used to stir the fire. The other day, for instance, when Marius murdered Hellas and flung himself from a rock, was he mad? Or will you acquit him of disordered mind and find him guilty of crime—giving things, as men so often do, names that are first cousins to one another?
>
> *Horace for English Readers.* E. C. WICKHAM.

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The Albany Medical Annals in 1905

The events of the last year have so shaped themselves that the ANNALS has found it necessary to direct attention to itself with more than customary frequency. The publication of the Jubilee Number in January, and its favorable reception marked an occasion of no little importance in the history of a magazine. There has been noted an increase in the subscription list, the advertising, and the demand for copies containing articles of interest to one reader or another. This popularity has proved embarrassing. An abundance of good manuscript has been received, trying the capacity of the ANNALS, and nearly all contributions have been delayed. Such was the fate, for instance, of the two very important "Scientific Reviews," by Dr. Pearce and Dr. Laird, respectively, upon "The Relation of Protozoa to Disease," and "Behring's Theory of the Origin and Spread of Pulmonary Tuberculosis." Other contributions of the same sort were declined, though their importance is great, and they have long been regarded as most valuable features of the ANNALS and of the literature of medicine. Page upon page of abstracts of the leading articles of other journals, American and foreign, has been standing in type upon the printers' galleys, awaiting space. The reviews of new books have been delayed, although the publishers have recognized the value of these criticisms, and have sent a greater number for notice.

It is evident that response must be made to this growing appreciation of the ANNALS. In order to meet the demand it is proposed by the committee of publication to increase the size. The result will be a yearly volume of approximately nine hundred pages. In this way it is hoped that publication may be more prompt. An attempt will be made to print the papers read at the meetings of the County Medical Society in the same issue with the discussions upon them. The records from the State Medical Library, begun during the present year, will be continued. Lists of books and magazines selected for this library by its competent committee of physicians cannot fail to instruct in the progress of the literature. The work of the Bender Hygienic Laboratory is now well organized, and the number of assistants increased. Many special investigations are under way, and will lead to reports of great general value. Plans for the publication of these reports in connection with the ANNALS are now under consideration.

The subscription price of the ANNALS will be two dollars a year. The funds are used in publication, and the work of the editorial staff and contributors is without monetary compensation. The ANNALS is an illustrious example of the high character of voluntary service. Such instances are numerous in medicine, and evoke the wonder of the commercial world. With the increased demands of each year, the editorial workers have responded faithfully, and in the broadening field of the future, the same excellent standard may be expected.

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The Diet Kitchen

The Albany Guild for the Care of the Sick Poor has now completed all the necessary arrangements for a Diet Kitchen which will be in operation about the first of October. Miss Belcher, who is a graduate of the Pratt Institute, and has also taken the post graduate course in Domestic Science at Columbia University, New York, is at the head of the Diet Kitchen.

Broths, modified milk, and other articles of diet for the sick may be kept on hand and orders for any kind of sick room diet will be filled. This Diet Kitchen is a branch of the Guild work, and is in the new Guild House, 390 Madison avenue. There will be found a thoroughly equipped kitchen for this work, including the latest cold storage refrigerator. A printed price list may be obtained in October, and all articles will be as low as possible in order to be within the reach of those who need them; but any one, rich or poor, may here be supplied. With the hearty co-operation of the physicians and nurses of Albany, who doubtless recognise the great value of this work, it will surely be a success and supply a need long felt in our city.

Hon. William Law Learned

The death of Judge Learned was a severe loss not only to his many personal friends, but also to a great variety of important interests throughout the city. On his merit alone, in a city in which he had no inherited or family influence, by his industry and intelligence he quietly attained to a very high position in the law. But his warm and broad sympathies were not limited by his chosen profession. They extended far out into all good works carried on for the benefit of his fellow men and in this way he came in close touch with medical work and medical men.

Scarcely a man in Albany did more to promote its medical interests than did this busy lawyer and the MEDICAL ANNALS would not, and indeed could not in honesty, refrain from offering its tribute to the memory of a noble man, who was so modest that probably he was not himself conscious of what a potent factor for good he was in the community.

During the past twenty years he was a Trustee of the Albany Medical College and during the latter part of his life the honored President of the Board. During his trusteeship he ever had warmly at heart the interests of the College, which was during that time passing through its rapid expansion from an obligatory two years' attendance on a single course of didactic lectures into a graded four years' course with abundant laboratory and clinical instruction, not dreamed of twenty years ago.

But it was in the Albany Hospital that he accomplished his really great work for the advancement of scientific and philanthropic medicine in North Eastern New York. Few know how much and of what fine quality this work was. Before the new hospital was built he traveled over the country inspecting hospital construction and during the preparation of the plans and the construction of the building his suggestions and criticisms were heeded and followed. He was a most influential member on the committees for the contagious hospital and for pavilion "F." In the many legal questions involved in the administration of the hospital, and especially of pavilion "F," his advice was constantly asked, was freely given and was always found to be sound and eminently practical. He was the wise counsellor of the Board; one of its most modest and unassuming, but really most important, members during the transformation from its embryonic condition on Eagle street into a model hospital, complete and modern in all respects.

His inexhaustible sympathies spread out and included the training school for nurses, in the guidance of which his wise advice was invaluable. At the graduating exercises of successive classes of nurses he presided, and in giving diplomas gave also advice scarcely less valuable.

Well may the medical profession lament that the activity of its wise and most disinterested friend has ceased, but the work he has done will endure. "'Tis ever wrong to say a good man dies."

Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—CITY OF ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS—AUGUST, 1904

Deaths

	1901	1902	1903	1904
Typhoid Fever	3	3	3	2
Scarlet Fever	0	0	0	0
Measles	0	0	0	0
Erysipelas	0	0	0	0
Whooping-cough	0	1	0	1
Diphtheria and Croup	2	2	1	1
Diarrhœal Diseases	20	13	15	35
Consumption	13	12	16	18
Pneumonia	0	0	0	0
Broncho-pneumonia	2	2	2	0
Bright's Disease	14	8	12	15
Apoplexy	6	9	3	9
Cancer	7	10	8	7
Accidents and Violence	9	6	7	7
Under one year	25	17	36	25
Seventy years and over	15	16	18	30

Deaths in Institutions

	1901	1902	1903	1904
Albany Hospital	14	18	9	13
Albany Orphan Asylum	1	0	2	0
Child's Hospital	0	0	0	0
County Hospital	6	2	1	12
Home for Aged	0	0	1	3
Homeopathic Hospital	2	2	4	1
Little Sisters of the Poor	1	0	2	0
Penitentiary	2	0	0	0
Public Places	3	1	0	1
St. Francis de Sales Orphan Asylum	1	0	2	1
St. Margaret's House	6	0	3	0
St. Peter's Hospital	4	6	4	10
Total deaths	134	126	131	161
Death rate	15.77	14.83	15.42	18.94
Death rate less non-residents	13.18	14.01	14.36	17.53
Marriages				60

Births		136
Births at term	123	
Still births	9	
Premature births	4	

Work of Health Physicians

	1902	1903	1904
Assignments	49	33	73
Number of calls made	162	160	341
Cases sent to hospitals			10

Inspections

In the Bureau of Markets and Milk there were forty-five inspections made of markets, twelve of the public market, two slaughter houses were inspected, thirty milkmen. Seven samples of milk were taken of which fourteen tests were made; twelve tests were found to be above the average of 3.2 per cent. butter fats and two were found below.

Detailed Results of Tests Made

Tests	Temperature	Specific Gravity	Specific Gravity at 60°	Butter Fats	Total Solids
2	68°	33	34.1	3.8	13.2
2	66	33	33.8	2.6	11.7
2	80	30	32.9	3.4	12.5
2	80	29	31.9	3.2	12.0
2	79	27	29.6	3.2	11.4
2	79	31	33.8	3.4	12.7
2	76	33	35.4	3.4	13.1

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and eleven inspections made, of which one hundred and twenty-three were of old buildings and eighty-eight of new buildings. Thirty-two iron drains were inspected, twenty-five connections with street sewers, twenty-seven tile drains, five urinals, thirty-nine cesspools, fifty-one wash basins, forty-four sinks, forty-nine bath tubs, twenty-seven wash trays, fourteen trap hoppers in yard, seventy-three tank closets, seven slop hoppers. One hundred and forty-two permits were issued, of which one hundred and fifteen were for plumbing purposes and twenty-seven for building purposes. Sixteen plans were submitted, of which seven were of old buildings and nine of new buildings. Twenty-one houses were tested on complaint, of which nine were made with blue test and twelve with peppermint tests; eleven water tests were also made.

During the month there were seventy-five complaints made of which nineteen were of privies, four of closets, eight of drains, twelve of plumbing, seven of water on premises, one of filthy yards, two of filthy cellars, two of filthy vacant lots, four of filthy premises, five of chickens, three of garbage, one of smoke, one of odors, and one of ventilation. Eighty-eight inspections were made, of which fifty-six were sanitary inspections and thirty-two plumbing; 106 reinspections were made, of which eighty-three were sanitary and twenty-three plumbing. Nineteen nuisances were found on reinspection to have been abated, fourteen complaints were found to have been made without cause, and twenty-nine notices were served to abate nuisances.

During the month there were one hundred and sixty-nine inspections made of mercantile establishments and sixty-one reinspections. There was found twenty-three violations of the mercantile law. One hundred and sixty closets were inspected, and but one defective closet was found. Thirty copies of the law were delivered. Eleven mercantile certificates were issued to children during the month, and one hearing was held before the Commissioner of Public Safety on violations of the law, at which three cases were brought up.

BUREAU OF CONTAGIOUS DISEASES

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	24	9	11	21
Scarlet Fever	4	5	3	1
Diphtheria and Croup	27	20	10	9
Chickenpox	0	2	1	0
Measles	1	1	4	0
Whooping-cough	0	0	0	1
Consumption	0	0	3	2
Totals	75	37	32	34

Fumigations:

Houses.................. 17 Rooms.................. 63

Number of days quarantine for diphtheria:

Longest....... 19 Shortest....... 14 Average....... 17

Number of days quarantine for scarlet fever:

Longest....... 41 Shortest....... 26 Average....... 3

ANTITOXIN

Cases of diphtheria reported	9
Cases in which antitoxin was used	9
Deaths after the use of antitoxin	1

The one death from diphtheria was a male, five years eleven months old, sick four days, antitoxin was used shortly before his death.

BENDER LABORATORY REPORT

Diphtheria

	1902	1903	1904
Initial positive	16	2	4
Initial negative	10	8	15
Release positive	9	0	0
Release negative	8	0	1
Total	51	11	20

Examinations of Sputum for Tuberculosis

Initial positive	4

Medical News

Edited by Eugene E. Hinman, M. D.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR AUGUST, 1904.—Number of new cases, eighty. *Classification of cases:* District cases reported by health physicians, two; charity cases reported by other physicians, thirty-five; patients of limited means, forty-three; old cases still under treatment, twenty-nine; total number of patients under nursing care, 109. *Classification of Diseases* (new cases): Medical, twenty-four; surgical, eight; gynæcological, three; obstetrical, mothers, twenty-four; infants, twenty; dental, one; removed to hospitals, two; died, eight. *Special Obstetrical Department:* Number of obstetricians in charge of cases, two; attending obstetricians, one; number of students in attendance, six; Guild nurses, five; number of visits made by head obstetrician, ten; number of visits made by attending obstetricians, twelve; number of visits made by medical students, 31; number of visits made by Guild nurses, forty-one; number of visits with nursing treatment, seven hundred and seven; number of visits for supervision of convalescents, one hundred and sixty-four; total number of visits for the month, eight hundred and seventy-one. Graduate nurses on duty, four; assistant nurses on duty, two. Cases were reported by one health physician and twenty-five other physicians.

ALBANY MEDICAL COLLEGE OPENS.—One hundred and seventy-three students presented themselves at the Albany Medical College on Tuesday, Sept. 20, to listen to the introductory lecture by Professor Richard M. Pearce, who has recently been added to the faculty as professor of pathology and bacteriology to succeed Dr. George Blumer. Of this number forty-five were first year men.

The trustees have made several changes in the faculty. Among the new clinical professors is Dr. Harry Judson Lipes, obstetrics; Dr. Spencer Lyman Dawes is adjunct professor of materia medica. Among the lecturers is Dr. Wilfred Silvester Hale, as demonstrator of anatomy and assistant curator of the museum. Dr. Edwin McDonald Stanton has been appointed lecturer in histology.

Among the other new instructors are Dr. Howard Eaton Lomax, instructor in anatomy and assistant demonstrator; Dr. Charles Knickerbocker Winne, Jr., instructor in bacteriology; Dr. George Gustave Lempe, instructor in anatomy; Dr. Donald Boyd, demonstrator in anatomy of the nervous system and assistant in normal histology; Dr. Edward Forrest Sibley, instructor in clinical microscopy, and Dr. Silas Lorenzo Filkins, prosector of anatomy.

NEW ENGLAND ALUMNI ASSOCIATION.—The annual meeting of the New England Alumni Association of the Albany Medical College will be held Oct. 20th, 1904, at Springfield, Mass. At the business meeting of the association, addresses will be made by Dr. T. D. Crothers, of Hartford, Conn., and Dr. Albert Vander Veer, of Albany, N. Y. Dr. Vander Veer will discuss the advances that have been made in surgery during the past two decades. In the evening a banquet will be served at Hotel Wortley, Dr. A. E. Abrams acting as toast-master. All graduates of our college residing in New England are earnestly urged to attend this meeting, and the officers and members of the association will be glad to welcome delegations from the other branches of our alumni.

New York and New England Association of Railway Surgeons.—The fourteenth annual meeting of this association will be held at the Academy of Medicine, New York City, Nov. 17 to 18, 1904, under the presidency of Dr. C. G. J. Finn, of Hempstead, L. I. Railway officials and all surgeons interested in this work are cordially invited to attend.

Medical Society of the State of New York.—The following business committee has been appointed by the president of this society: Dr. Henry Flood, of Elmira; Dr. Edward Davis, of New York; and Dr. Leo H. Neuman, Albany. This committee has charge of the program of the next annual meeting which will be held in Albany, Jan. 31st, and two days following, and communications relating thereto should be addressed to them.

Fourth Pan-American Medical Congress.—President Amador of the Republic of Panama has appointed the following officers of the Fourth Pan-American Congress to be held in Panama the first week in January, 1905: President, Dr. Julio Ycaza; vice-president, Manuel Coroalles; secretary, Dr. Jose E. Calvo; treasurer, Dr. Pedro de Obarrio. There will be but four sections: Surgery, medicine, hygiene, and the specialties, to which the following secretaries were appointed: Surgical section, Dr. E. B. Harrick; medical section, Dr. Daniel R. Oduber; section on hygiene, Dr. Henry E. Carter; section on specialties, Dr. Charles A. Cooke.

Guide to Diagnosis of Smallpox.—The New York State Department of Health in its monthly bulletin lately issued, calls attention of the profession to the frequency with which smallpox is mistaken for some of the milder exanthemata and suggests a few points for its differential diagnosis. Although it is six years since smallpox of the mild abortive type has prevailed all over this State, and medical literature has abounded in descriptions of it and its variations from the accepted type of the textbooks, we still meet with frequent failure in its recognition. Why it is so generally mild, and even after the lapse of years of domestication, continues to generally breed true to the type, is less important than to accept the fact that it is smallpox; and it is certain that it is, because: It is an infectious disease to which those who have had smallpox or effective vaccination are immune; it has the general characteristics of smallpox; and it sometimes communicates unmodified smallpox. Being mild it is overlooked, and persons having it, unconsciously, carry it from place to place, so spreading it throughout a community so that it stays there a long time unrecognized, or transport it to other localities. But it is largely because medical men overlook it that it fails of recognition.

The following simple aids to diagnosis were printed in 1899 and sent to health officers, and it is still timely to reprint them here since from time to time the need of them develops even yet:

"Note these data to aid you in diagnosis: If an adult; if the initial fever is marked and lasts three days, subsiding as the eruption appears; if the eruption comes first on the face and is most abundant there; and if there is any induration of the lesion, as of a papule having become vesicular, all of these or any modification of them are quite conclusive of smallpox. No adult should be allowed at large with an eruption thought to be that of chickenpox; no case of vesicular exanthem, preceded by marked fever, though the fever may have no characteristics differing from that of a severe or mild cold; no vesicular eruption so starting and coming mostly on the face, wrists (and frequently on the palms) is likely to be anything but smallpox; and if there is any induration of the base of vesicular lesions appreciable to touch with the tip of the finger, all of these are to be held as conclusive symptoms. In every case give the benefit of doubt to the public, for there will be some cases in which diagnosis will, for a little time, be difficult. Where several cases have occurred the difficulties of diagnosis will be lessened."

IDENTIFICATION OF CRIMINALS BY THE X-RAY.—The police department of France has made an advance in the identification of criminals by introducing the X-Ray. The Salpetriere Hospital of Paris has collected 8,000 negatives of fractures and other internal anomalies. The other hospitals of Paris probably contain twice as many more and it has been suggested that these might be of the greatest utility where other indications failed to establish identity. It is even proposed that a system of preventive radiography should be enforced, every criminal being subjected to the X-Rays as soon as arrested.

MEDICAL EDUCATION IN GERMANY.—The German government is perfecting plans whereby physicians may receive post-graduate courses in specialties in connection with hospital service. In the city of Dusseldorf where a new public hospital is being erected arrangements are being made for the new Academy for Practical Medicine to be connected with it. It will have facilities for instruction in general medicine, surgery, obstetrics, infectious diseases, and a fifth department devoted to pathological anatomy. There will be subdepartments for eye, nose, throat and ear work, for children's diseases, cutaneous and nervous affections and treatment of accidents. Physicians who wish to take up a specialty will be installed as assistants in the special department, and after serving a certain number of years will be given a certificate of proficiency in their specialty.

RECEPTION TO DR. THEODOR ESCHERICH.—On the evening of Sept. 12th, Drs. Shaw and MacFarlane tendered a reception to Dr. Theodor Escherich, professor of diseases of children, University of Vienna, Austria. This reception was very largely attended by physicians of Albany and vicinity, and among the number were many of the noted medical men of the country, including Drs. Jacobi, Koplik and Musser. Short addresses were made by Prof. Escherich and Dr. Jacobi. During the evening a number of popular selections were sung by two of Albany's well known vocalists, most of the guests present joining in the choruses. A buffet luncheon was served.

PERSONALS.—Dr. HENRY W. BROWN (A. M. C. '89) is practising in Silver City, New Mexico.

—Dr. EDWIN GRIFFITH (A. M. C. '03) is practising at Chadwick, N. Y.

—Dr. THOMAS J. LALLY (A. M. C. '99) has removed to 539 No. Main street, Waterbury, Conn.

—Dr. GEORGE L. VAN ALLEN has removed to 111 West avenue, Buffalo, N. Y.

In Memoriam

JOSIAH H. HELMER, M. D.

Dr. Josiah H. Helmer, who graduated from the Albany Medical College with the Class of 1847, died at Theresa, Jefferson County, N. Y., on Saturday, August 20, 1904. He was eighty-three years of age.

Dr. Helmer was a descendant of sturdy German ancestors from the old Palatinate of Germany, now a portion of the province of Hesse. The old German name was Aylmer, but soon after the family settled in the Mohawk valley it became Anglicized into Helmer. He was the son of Steuben Helmer, who came from the Mohawk valley and settled in Lockport, where he died in 1854 at the age of eighty-four years. For many years Dr. Helmer was a practicing physician, his early professional career having been in the beautiful village in Northern New York, where he died.

Dr. Helmer was twice married, his first wife being Ann Eliza Ranney, one daughter of this union surviving, the wife of Col. Charles Lowery Snow, of Pictou, N. S. He married again after the death of his first wife, Sarah Elizabeth Rogers. Two children of this union survive, Albert Helmer and Miss Elizabeth Helmer. Dr. Helmer was a member of the Presbyterian church and for very many years one of the most earnest Sunday school workers, giving much of his time to the Second Presbyterian church.

The burial was in Glenwood cemetery.

Dr. Helmer maintained an interest in the Albany Medical College up to the time of his death. On Alumni Day, 1887, he reported the history of his class, and said of himself that after graduation he practiced in a small town in Jefferson county for five years, after which he removed to Lockport and was for some time in partnership with Dr. Simeon Tucker Clarke, who is well remembered by the older physicians of the present day, particularly for his literary attainments. Dr. Helmer afterward retired from active medical practice and stated to his fellow Alumni that he regarded this act as the great mistake of his life. He became interested in business, which required his attention, and was, however, a successful man. He was

J H Helmer

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elected President of the Alumni Association, and at the meeting of 1888 delivered the President's address, largely of a reminiscent character, which is published in the Transactions of the Association.

A friend of Dr. Helmer sends the following appreciation of his finely developed character:

In every community in which he has lived, Dr. Josiah Helmer stands forth a colossal figure. He was broad-minded, large-hearted and great-souled. In the earlier days when there was less of organized charitable work than now,—and much more real need of it,—Dr. Helmer's was the hand that was always outstretched. No one ever applied in vain to him for help. Indeed, more often the assistance came without appeal, because his sympathies were strong and his insight into human nature broad. He carried sunshine into thousands of hearts and homes by the very strength of his own genial nature. God's poor were his poor. No day was too stormy, no night too dark and no road too rough or long to keep him from a place where he was needed. He gave freely of himself as well as of his means. The writer saw him constantly during twenty years of service among a people most of whom were compelled to work hard to earn a livelihood. There he could rightly have been called "The Great Commoner," for he shared with his people whatever was his own and they loved him devotedly.

The writer can see his great manly form, his face radiant with smiles, giving a nod here, a hand-clasp there, taking from his button-hole the flower which he always wore and bestowing it with a caress upon some wistful child. There never was a sick room among the people that he loved that was not brightened by flowers from his conservatories and by his presence. Indeed the odor of the Marechal Neil rose or that of a carnation recalls vividly the countless ones that were "lent to the Lord" a quarter century ago. In his works of love he was most nobly helped by his children and especially by her whom he once described as "The light of my eyes and the joy of my heart." He helped people to help themselves, because he believed in them. Many a person can trace success to Dr. Helmer's inspiring words: "The world needs you; no one else can fill your place, *do your best.*"

Lyndhurst Clinton Dodge, M. D.

Dr. Lyndhurst Clinton Dodge, of Rouse's Point, died August 12, 1904, aged sixty-three years. Dr. Dodge was a graduate of the Albany Medical College, class of 1862, and was a pupil of the late Dr. Alden March. He served as Home Surgeon in the old City Hospital. While on duty at the Albany City Hospital, he had for an assistant, the late Dr. Horace Tracy Hanks of New York. The doctor was a charter member of the New York State Medical Association and nominated its first President, Dr. Didama. Dr. Dodge was an assistant surgeon, U. S. A., on duty at Lincoln Hospital, Washington, D. C., in 1863 and 1864. After his service at Lincoln Hospital, he came to Rouse's Point where he had a large practice. His value as a surgeon was well known and appreciated. He was a kind friend and a much loved physician.

A. W. Fairbank.

Book Reviews

Manual of Materia Medica and Pharmacy. Specially Designed for the Use of Practitioners and Medical, Pharmaceutical, Dental, and Veterinary Students. By E. Stanton Muir, Ph. G., V. M. D. Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third Edition, Revised and Enlarged. Crown Octavo, 192 Pages, Interleaved Throughout. Bound in Extra Cloth, $2.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

Part I of this book, after giving a few general considerations as to what materia medica is, devotes thirteen pages to definitions of botanical terms, such as divisions of the vegetable kingdom, classes of plants, and kinds and varieties of leaves and seeds. It also gives definitions of the names of therapeutic actions.

Part II, pages 14 to 136, bears the title, "Materia Medica." Here the drugs are taken up alphabetically and of each one the name and order are given, a short description following. Then in turn come the official preparations, the active principle, the incompatibles, the therapeutic action and the dose in the metric system for man, horse, cattle, cat and dog. In the case of poisons, the toxicology is also noted. The physiological action is not anywhere mentioned.

Part III, pages 137 to 185, is given up to "Pharmacy," and contains in the forty-eight pages very brief directions for making some of the official preparations together with definitions of the mechanical processes. The index takes up seven pages.

With all the good will possible, it is difficult to find an excuse for the existence of this book. The idea of putting between the same covers and in 192 pages, facts of use alike to "the practitioner, the medical, pharmaceutical, dental, and veterinary student" is at least amusing.

From the standpoint of the first two the book is valueless, for it contains no reference to physiological action, without which a profitable study of materia medica is impossible.

For the pharmaceutical student it gives a few definitions and some very much abbreviated directions from the United States Dispensatory for making some of the standard official preparations and lists of the official tinctures, emulsions, acids, etc.

For the veterinary student it gives the dose for horses, cattle, dogs and cats and, occasionally, for sheep.

For the dental student a diligent search fails to reveal anything.

It is no more than fair to say that there seem to be no misstatements of facts and that the printing, the paper and the binding are good.

SPENCER L. DAWES.

Practical Gynecology. By E. E. Montgomery, M. D., LL. D. Second Revised Edition. Philadelphia: P. Blakiston's Son & Co., 1904.

The appearance of the second edition of this valuable contribution to the literature of gynecology, so soon after the first edition, is the best proof of the value and popularity of the work. In this day when almost every gynecologist writes a book, and when so many of those books are decidedly mediocre in character, a good book stands out by contrast, and this we feel is true of this volume. It has been re-written to a very considerable extent, and numerous new illustrations have been added. The arrangement of the subject-matter has also been changed somewhat, and, as it seems, very advantageously. The author has ever kept in mind the fact that the book must be practical and he has certainly succeeded in making it so. Five hundred and thirty-nine cuts in a volume of 854 pages demonstrate how profusely it is illustrated, and these illustrations are unusually well executed.

While sufficient attention is paid to the pathological side of gynecology, the chief emphasis is laid upon the clinical and operative discussions. Practically all the important operations devised for the relief of the conditions considered are presented in sufficient detail and with sufficient illustrations to make them intelligible to even the amateur gynecologist.

The volume is provided with a most excellent index of authors quoted and of subject-matter, which adds greatly to its usefulness. We prophesied that the first edition would be well received by the medical profession, and we believe that the circulation of the present edition will exceed even that of the first.

A. W. E.

The Optical Dictionary. An Optical and Ophthalmological Glossary of English Terms, Symbols and Abbreviations. By CHARLES HYATT-WOOLF, F. R. P. S. P. Blakiston's Son & Co., Philadelphia.

The object of this work, as the author states, is to provide a handy and reliable compendium of optical terms for members of the optical industry and physicians in search of more information than is afforded in the usual curriculum. It is a small work consisting of an alphabetical list of words printed on good paper with prominent type, but without any aids to pronunciation. All definitions are short and few are descriptive. Two pages of symbols and abbreviations form an appendix of the usual kind commonly noted in all ophthalmological works. Many terms are erroneously defined, including choroid, cross-eye, conus, hippus, glaucoma, granular conjunctivitis, iris, lorgnette, mucocele, myosis, ophthalmia neonatorum, recti, scotoma, corus, and vitreous humor. Many other terms are omitted, among which are abduction, advancement, albinism, amaurotic, amblyopia, blenorrhœa, canaliculus, Cloquet's canal, chiasm, cilio-retinal vessels, conjugate paralysis, consensual pupil reaction, corelysis, cystoid, cicatrix, deviation, evisceration, excentration, intercalary, keratoscope, corneal macula, occlusion pupil, ophthalmomalacia, pinguecula, plica semilunaris, posterior chamber, pseudo-glioma and sursumduction. There are no subdivisions under cataract, iritis, keratitis, etc. No mention is made of drugs that are used almost exclusively in eye work.

The book has no redeeming feature, and is of no value to the medical student or practitioner.

ARTHUR J. BEDELL.

Current Medical Literature

OPHTHALMOLOGY

Edited by Charles M. Culver, M. D.

The Cure of Detachment of the Retina by Subconjunctival and Intracapsular Injections of Salt Solution. (La guérison du décollement de la rétine par les injections sous-conjonctivales et intra-capsulaires de sel.)

De Wecker (Paris). *Annales d'Oculistique, August, 1902.*

The author has long advocated the treatment of retinal detachment, rudely described by the title of the article under consideration. This article begins by a discussion of the intercommunication of the capsule of Tenon and the subconjunctival space. Although admitting that fluid may be injected into the capsule, the author holds that it readily escapes through channels of communication from the anterior part of the capsule to the subconjunctival space. The kind of solution to be injected is elaborately considered; the more concentrated solutions give the best results and cause less pain than do the ordinary salt solutions. If good results are to follow, the injections must be many times repeated, and patients will not submit to such repetitions without being anesthetized, if the solutions be stronger than ten per cent. In order to obviate this difficulty the author has undertaken to inject sodium sulphate solution with gelatine; this attempt failed of the desired result. Although pain may in this way be avoided, the necessary concentration cannot be obtained. Solutions of salt, with bovine vitreous as the solvent, are said to have given satisfaction; data sufficient for the basis of an unprejudiced opinion are not furnished in the article.

Experience generally, of other observers, does not justify a favorable opinion of such treatment of detachment of the retina. At the conclusion of this article, however, de Wecker says he considers it to be warranted by its results.

PEDIATRICS

Edited by Henry L. K. Shaw, M. D.

Stridor Thymicus in Infants. (Stridor Thymicus Infantum.)

Hochsinger. *Wiener medicinische Wochenschrift, November 7, 1903.*

In 1902 the author called attention to the fact that it was quite possible, clinically, and by radiography, to establish the size of the thymus gland in infancy and early childhood *intravitam.* Particular attention was paid to thes children in whom the symptoms-complex of the so-called "stridor congenitus" existed.

The clinical picture of the anomalous breathing of infants is about as follows:

The curious breathing is present in newly born children or in the first few months of life, and consists of stridulous breathing that can be heard for a considerable distance. Sometimes this breathing develops soon after birth, but more frequently it comes on suddenly during the first few weeks of life without causing much distress.

This noisy breathing, as a rule, lasts for months and usually disappears as suddenly as it develops. Ordinarily the characteristic breathing consists of a harsh sound which reaches its greatest intensity at the end of inspiration.

The children are never cyanotic and have no dyspnœa in the true sense of the word. The respirations are normal in frequency but are noisy on account of the respiratory stridor. In uncomplicated cases there is no elevation of temperature and the children do not appear ill. The children are not hoarse and are free from catarrhal symptoms on the part of the larynx.

An inspiratory retraction above and below the sternum is invariably present. These retractions are not as severe as in croup, pseudocroup or capillary bronchitis, but are always present. In spite of this symptom-complex, which points to some construction of the upper air passages, the children appear well and happy and, as a rule, develop normally. According to repeated instances in literature, however, this curious breathing anomaly, which in itself appears harmless, may at times go on to fatal attacks of suffocation caused by a great hyperplasia of the thymus.

In the author's experience, the symptoms above described are, in the majority of the cases, thought to be caused by some catarrhal affection of the bronchi. This condition must be differentiated from capillary bronchitis and bronchial asthma. In these two affections expiration is more involved than inspiration. Inspiration is free but during expiration high-pitched whistling sounds are heard. The children are cyanotic and there is a well-marked diaphragmatic expiration.

Five theories have been advanced to account for the pathogenesis of this condition: (1) a congenital malformation of the laryngeal entrance, (2) the presence of adenoids, (3) hypertrophy of the bronchial glands, (4) a nervous theory in which a posticus paralysis was supposed to be the cause, and (5) thymus hypertrophy.

The author's paper was based on the study of about a hundred cases in which the characteristic breathing was present.

There are no true laryngeal symptoms in the uncomplicated cases, the children are never hoarse and there is no croupy cough. Even those children in whom the noisy respiration is not decided, show the sub-sternal retractions.

The author came to the conclusion that these symptoms could only be explained by changes in the thymus, and this opinion was verified because in every case an enlargement of the thymus could be made out on percussion. The author has, in the past two years, had Roentgen examinations made in these cases. In nursing infants the writer has been able to map out the thymus by percussion. Under normal conditions the thymus does not extend beyond the borders of the sternum, but in pathological enlargement of the thymus, it extends beyond the sternal borders.

The author was able to establish a positive relationship between rachitis and hypertrophy of the thymus since in thirty-two rachitic children he found an enlargement of the thymus in twenty-three. This enlargement of the thymus is produced in a way similar to the enlargement of the spleen in the same disease.

Scoliosis as a Result of Typhoid Fever. (Scoliose Produite Par Une Fievre Typhoide.)

MUNIAGURRIA. *Archives de Medicine des Enfants, November, 1903.*

The author reports the following case:

A child of eight years was received on the 8th of February in the surgical division of the Rosario Hospital with the diagnosis of coxalgia. The previous history was that in November the child had had an attack of typhoid fever. There were the typical signs, epistaxis, prostration and a very intense and continued fever. On the ninth day the doctor ordered a cold pack and immediately after the child was taken with a severe pain in the left iliac fossa and the fever again rose. This prolonged the convalescence and the little patient was not even able to leave his bed or to walk on account of the intense pain in the region mentioned. As a result of the pain the thigh was flexed on the abdomen.

On his admission to the hospital the diagnosis of psoitis was made and the leg was placed in an extension apparatus. After a month the pain had entirely disappeared. When the child was removed from the hospital, it was found on examination that there was a marked dorsolumbar scoliosis, so that the body was decidedly inclined towards the left.

The clinical interpretation of this case is of interest. The typhoid fever had produced a myositis of the ilio-psoas muscle and a contraction of the left leg, induced by the painful retraction of this muscle and the scoliosis was produced by way of compensation.

Muscular complications in the course of severe fevers are relatively frequent and affect very often the adductor muscles of the lower limbs.

It is probable that we have to deal with inflammation of the muscle as a result of intra-muscular hæmorrhages. The little patient instinctively avoided the pain produced by the extension of the left leg and he inclined to the left side in order to relax the long head of the ilio-psoas which is attached to the bodies of the lumbar vertebræ above and the lesser trochanter below and this effort of accommodation produced a primary lumbar scoliosis of the kind designated by Kirmisson as static scoliosis with dorsal compensatory curvature.

The author treated this patient by gymnastics two hours every day. Success crowned his efforts and the child left the hospital after a month with his psoitis cured and his vertebral column completely restored to shape.

PATHOLOGY AND BACTERIOLOGY

Edited by Richard Mills Pearce, M. D.,

Assisted by E. MacD. Stanton, M. D., and Charles K. Winne, Jr., M. D.

Cultivation of Trypanosoma Brucei.

F. G. Novy and J. McN. Ward. *Journal of the American Medical Association, November 21, 1903.*

At the last meeting of the American Medical Association, Novy and Ward presented before the section on pathology and physiology, the results of their work on the cultivation of the rat trypanosoma (Trypanosoma Lewisi). This was the first time that a pathogenic protozoon had been successfully cultivated and its relation to the disease demonstrated by inoculation of pure cultures, and was therefore a distinct advance in our knowledge of the animal parasites.

The same writers now make a preliminary report on the successful cultivation of the *Trypanosoma Brucei,* the cause of nagana or tsetse-fly disease of South Africa. The culture medium employed for rat trypanosomes was ordinary nutrient agar containing variable amounts of defibrinated rabbit's blood, in the water of condensation of which the organism grew readily and luxuriantly. The nagana trypanosoma does not take readily to this medium, and cultures were obtained with great difficulty. When, however, an initial growth was once obtained, the subsequent cultivation was less difficult. Cultures were made from fifty animals with forty-six failures. From each of the remainder, cultures were obtained, one of which has been carried through seven generations, covering, at the time of publication, a period of seventy-seven days. The growth may be obtained at room temperature or at twenty-five degrees centigrade; at thirty-four degrees centigrade growth is possible but the culture loses its virulence and soon dies out. While the rat trypanosoma will grow in blood and agar in the proportion of one-half, one-fifth or even one-tenth, the nagana organism requires an amount of blood at least equal to the agar, a fact which may be utilized to separate the two trypanosoma in cases of mixed infection.

Ependymal, Gliomatous and Epithelial Tumors of the Central Nervous System.

F. Saxer. *Beiträge zur pathologische Anatomie und zur allgemeine Pathologie, 1902, XXXII, 276.*

In a long and detailed article with the above title, Saxer discusses the subject of primary epithelial tumors of the central nervous system. He divides them into two classes, (a) epithelial structures in gliomata, and (b) true epithelial tumors of the brain, and after a careful pathological study of the findings in several cases of each class, as well as a consideration of the embryological relations of the tissues concerned, reached the following conclusions:

It is not possible to establish positive differences between the epithelium lining the ventricles of the brain and that of their appendages, between the epithelium of the central canal and the so-called ependymal cells of the spinal cord; both agreeing also in every particular with the epithelium of the choroid plexus. This finding opposes the view of Benda, that in the case of the epithelium of the plexus we have to deal with a true epithelium, and in the case of the ependymal cells with a "pseudo-epithelium." For the latter view there is no embryological, histological or pathological basis. The epithelium covering the plexus and the ependymal epithelium are capable of giving rise to identical tumors.

There are in the brain, tumors of true epithelial character developing from this epithelium, containing no trace of neuroglia tissue, and growing exactly like papillomata of other regions of the body (*e. g.*, skin, mucous membrane of the throat, and the urinary bladder). So-called cancers of the brain arise from the down growth of these papillomatous growths.

In these tumors the finer structure of the epithelium varies no more from the normal structure of their original cells, than do epithelial tumors of other tissues. There is, therefore, no reason to assume an embryological misplacement as the origin of such tumors.

On the other hand there is a possibility that tumors may be found either in the brain substance itself or in the ventricles, especially the third ventricle, which do not arise from the epithelium lining these cavities, even though their position would warrant such assumption. It is possible such tumors may arise from the epithelial layers of the hypophysis, *i. e.*, the anterior portion or stalk of the hypophysis cerebri.

In contrast to these tumors of the ventricles, to be denoted as pure epithelial tumors certain epithelial formations are seen in gliomata of the brain as well as of the cord, due to the normal embryological relations between neuroglia and epithelium, and in no wise caused by embryological displacements of tissue.

CLINICAL MICROSCOPY

Edited by Arthur T. Laird, M. D.

Observations on the Coagulation Time of the Blood and the Blood Plates.

Joseph H. Pratt. *Journal of Medical Research, Volume X, No. 1, August, 1903.*

The instruments which have been most generally used to determine the coagulation time of the blood have been those devised by A. Wright and by Brodie and Russell. In the Brodie and Russell instrument which was the one used by the author, a current of air is directed by means of a pointed glass tube connected with a rubber bulb against a drop of blood placed in a moist chamber. This sets the corpuscles in motion. The drop is then examined under the microscope. When coagulation begins the movements of the corpuscles cease. The author devised, with the assistance of Professor Grützner of Tübingen, a modification of this instrument which appeared to be just as reliable and was very much less expensive, costing only seventy-five cents, while the London instrument cost ten dollars. The accuracy of the method was demonstrated by taking several drops in rapid succession from the same wound and estimating the coagulation time with different instruments, the results secured being the same.

It was found that blood obtained by puncturing the skin of the ears or fingers of the same individual showed remarkable variations in coagulation time. If a large deep cut were made from which the blood flowed freely, the coagulation time was relatively slow while blood from a small superficial cut coagulated quickly.

If blood was forced out of a wound of the skin by pressure, the coagulation was accelerated. An increased amount of lymph in the tissues as in œdema did not accelerate the coagulation.

There were no characteristic differences in the coagulation time dependent upon the part of the body examined.

For the repeated examination of the same blood it was necessary to avoid contact of the blood with the tissues, and this was accomplished by inserting a hollow needle into the veins of the arm. The coagulation time can be determined with a fair degree of accuracy by this method, but as it involves the withdrawal of the blood directly from the veins it was not considered feasible.

The attempt was then made to discover the factors that caused the variations in the coagulation of blood obtained from puncture of the skin. Numerous determinations of the coagulation time in health and various morbid conditions did not yield any positive results. Very marked variations occurred, amounting in one case to from two to nine minutes within half an hour. The average time in both health and disease was from four to five minutes.

The relation of the blood plates to coagulation was next studied. A method of counting the plates was devised in which the fresh blood was mixed with a five per cent. solution of crystallized sodium metaphosphate in the proportion of one part of the blood to five or ten of the solution. A drop of the mixture was placed on a carefully cleaned slide under a cover glass. It was found to be essential that the slides and cover glasses be perfectly clean. Dekhuysen's method of cleaning was used. A red blood cell count having previously been made with the hæmocytometer the ratio between the red cells and the plates in the sodium metaphosphate preparation was determined and the number of plates per cubic millimetre estimated.

In some individuals the count was found to be quite constant; in others there were marked variations from day to day and from hour to hour. The plates always disappeared as soon as coagulation began. There was no direct relation between the time of coagulation and the number of plates present in the blood. The author therefore considers untenable the view that coagulation time is determined by the number of plates in the unit volume of blood or is due to the presence of a certain amount of coagulation producing substance derived from the plates.

MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

On the Value of Aspirin in Acute Rheumatism.

EDWARD MACKEY. *The Lancet (Lond.), November 7, 1903.*

It was the occasional drawbacks of "sickness, depression, or headache symptoms" after using the salicylates, that lead Mackey to employ the acetic-ester of salicylic acid (commonly known as aspirin), in acute rheumatism. He gives brief histories of eleven cases and speaks of "thirty or forty more."

In case I, a boy of seventeen with a temperature of 103°F. and pain and swelling in feet, hands, wrists, and knees, the aspirin was given in doses of twenty grains every three or four hours and the patient was free from pain and with normal temperature in two days.

In case II, the patient had been ill for nine days when admitted; he had pain, pyrexia, swelling of several joints and was relieved with the same dosage as in case one, in one day.

Case III, which was of six days' duration prior to admission, was so severe that the patient was helpless and with great pain and high temperature; he was given thirty grains of aspirin every fourth hour. On the second night he was sufficiently relieved to be able to sleep and his temperature was normal; he was then given twenty grains *pro dosi* and improved steadily so that on the eighth day after admission his only complaint was weakness in one leg.

Case IV was not so favorable. This patient had several previous attacks and the present one was in its fourth week at the time of admission; he was much prostrated and with a systolic bruit and friction sound, a temperature of 103°, pulse of 120, and sleepless. He was given twenty grains of sodium salicylate every four hours; in four days he had improved but had a relapse, then improved and relapsed again on the fifteenth day. Fifteen grain doses were then given, t. i. d., with marked improvement, this being followed by potassium iodide and convalescence on the forty-fifth day.

The other cases were similar to the first three as to the dosage of aspirin and to the fourth in the use of an alkali and made recoveries in from seven to twenty-one days. Several of the most obstinate of the cases showed but little if any improvement until the aspirin was given in combination with an alkali.

The advantages as summarized by Mackey are: "(1) its slightly acidulous, pleasant taste; (2) slight or non-decomposition in the gastric juice, so that it passes without causing nausea or irritation of the stomach, into the intestines from which the active acid is absorbed; (3) consequent probably on differences in absorption and elimination there is much less liability to head symptoms, of which indeed the only one I have noticed, and that rarely, is tinnitus; and (4) less cardiac depression, so that although it lowers the pulse with the temperature it can be continued more steadily and with less anxiety than the soda salt. It relieves pain and pyrexia quite as well, if not better but does not cause such copious sweating, although, such effect is well enough marked after full doses."

He believes that in severe cases the "conjoined treatment," (aspirin with an alkali, preferably iodide of potassium), "is the best."

The Treatment of Anæmia. (Zur Behandlung der Anämien.)

MAMLOCK. *Zeitschrift für diätetische und physikalische Therapie, August, 1903.*

Among the advances made in the treatment of anæmia, one of the most important is the use of heat in the form of hot baths.

The treatment is based upon the theory of Gravitz and v. Noorden that chlorosis is a vaso-motor neurosis which leads to change in the osmosis of the blood to the tissues and influences the development of the red blood cells in the bone marrow. The blood is richer in plasma and this condition is intensified by the poor appetite. Recent investigations have shown a marked tendency of the blood to reestablish normal relations, not only of the blood cells to the plasma, but even of the proteids and sugar. It has therefore been concluded that a marked increase of the red blood cells might be induced when increased activity of the tissue fluids into the circulation was produced. This is accomplished by heat, inducing a dilatation of the peripheral vessels with marked perspiration. Attempts have been made to overcome the watery condition of the blood by the removal of liquids, by laxatives and diuretics. This thickening of the chlorotic blood is, however, easiest accomplished by inducing perspiration by means of hot baths. Rosin prescribed hot baths thirty-two to thirty-five degrees centigrade three times weekly for a half to one and a half hours and after four to six weeks saw marked improvement in cases resisting other lines of treatment. Senator praises the use of hot air baths which alone will cure chlorosis or at least will greatly assist the other therapeutic measures.

The writer gives the histories of two cases, one of whom did not improve upon the administration of iron and arsenic, where the hæmoglobin rose from thirty per cent. and thirty-five per cent. to sixty-five per cent. and sixty per cent. respectively in four weeks with increase in weight and improvement in other symptoms. This treatment increases oxidation, strengthens cardiac action and deepens the respirations. The only contraindication is an intense general weakness.

Borax in Epilepsy.

J. HOPPE. *Berliner klinische Wochenschrift, 4 July, 1904.*

Hoppe calls attention to the statement of Gowers that there are four classes of epileptics who either do not improve under the bromide treatment, or who tolerate the bromides badly. These four classes are; first, those in whom the functions of the organs of excretion are imperfectly performed; second, those in whom the heart and the arteries are much impaired; third, where there is a brain lesion in addition to the epilepsy; fourth, those in whom hyperacidity and motor insufficiency evidence a failure of the stomach to properly perform its functions. In many of these cases Gowers has used borax with success and Hoppe reports twelve cases thus treated. Of these, five who had digestive disturbances, i. e., belonged to the fourth class, improved markedly although one of them lost weight rapidly. The other seven cases showed no improvement. All bore the borax in 0.3 gramme (four and two-thirds grain) doses for a long time, exceedingly well and this dose was given three times each day. The caution is given not to use the borax unless the skin and kidneys are doing their work properly, and, while recognizing the fact that while borax is in no way a specific in epilepsy, he strongly advocates its trial in cases of hyperacidity accompanying epilepsy.

Dunbar's Antitoxin.

R. Mohr. *Deutsche medicinische Wochenschrift, 21 January, 1904.*

From a careful study of its effects upon himself and upon his patients, Mohr believes that Dunbar's antitoxine is of no value, either to abort an attack of hay fever or for the purpose of immunization, but that its sole value lies in modifying individual attacks. The antitoxin should be used continuously through the whole period during which the patient is accustomed to being afflicted each year. His chief objection to its use is its great cost and the difficulty in procuring a sufficient supply. He also describes an apparatus for preventing hay fever. It is an instrument to be worn inside the nostrils, funnel shaped and containing a thin sheet cotton wool for the purpose of filtering the air and keeping out of the nostril the pollen which is the occasion of the irritation. A wax model of the interior of the nostril is first made and then this pattern is followed, an instrument thus being obtained which can be worn, out of sight. Both he and his patients have been benefited by its use.

SELECTED FORMULAE

For the insomnia of alcoholism:

℞ Sodii bromidi	℥ss
Chloralis	ʒij ss
Syrupi aurantii corticis	fl℥ss
Aquæ, q. s. ad	fl℥jv

M. S. A teaspoonful at bed time and repeated during the night if necessary.

—*Kraft-Ebing.*

For leucorrhoea accompanying anemia:

℞ Acidi arseniosi	gr.¼
Ferri redacti	gr.v
Quininae sulphatis	ʒj

M. ft. pil. No. xx.
S. One pill three times a day, after meals. —*Hare.*

For sexual neurasthenia:

℞ Quininae sulphatis	℈j
Ferri subcarbonatis (U. S. P., 1870)	ʒj
Strychninae sulphatis	gr.ss
Extracti damianae	℈j
Extracti cinchonae	℈ij

M. ft. caps. No. xx.
S. One t. i. d. p. c.

—*Bedford Brown.*

For the anuria of scarlatinal nephritis:

℞ Extracti jaborandi fluidi	fl℥ss
Potassii citratis	ʒvj
Aquæ destillat	fl℥ij ss

M. S. One teaspoonful in a wineglass of water every four hours. —*Starr.*

For angina pectoris:

℞ Nitroglycerini	gr.iij
Tincturae capsici	flʒss
Aquæ menthae piperitæ	
Spiritus rectificati, aa	flʒiij

M. S. Two to ten drops. Dose to be repeated with caution. Pain is relieved in three minutes.

—*Schott.*

Or

℞ Spiritus glonoini	flʒss
Spiritus chloroformi	flʒss
Tincturae capsici	flʒj
Aquæ menthae piperitae ad.	fl℥j

M. S. A teaspoonful every four hours, with an extra dose immediately at the onset of the attack.

—*Osler.*

For the flatulency which often precedes the attack:

℞ Spiritus ætheris compositi	
Spiritus camphoræ	
Aquæ menthae piperitae, aa.	fl℥ss

M. S. Three teaspoonsful in hot water or hot whiskey. —*Osler.*

For chronic gout:

℞ Hydrargyri chloridi mitis	
Aloes	
Ipecacuanhae pulveris	
Extracti colchici radicis, aa.	ʒj

M. Divide into sixty pills.
S. One three times a day.

—*White.*

For migraine:

Exalgin	℈j
Rum.	
Syrup, aa	fl℥j
Water	fl℥iv

M. S.—Teaspoonful three times a day. —*Collins.*

Turpentine is a "right smart medicine" when improperly used.

—*Lucien Lofton.*

For otitis media:

℞ Acidi carbolici	♏ viij
Ext. opii fluidi	♏ ix
Cocoainæ	gr. iv
Atropinæ sulphatis	gr. ii
Gelatini	gr. xviij
Aquæ	♏ lij
Glycerini	gr. clviij

To make in bougies, No. xlij.

The above is Theisen's modification of Richard's aural bougies. Dr. Theisen has found them useful in acute otitis media for the relief of pain, and he believes that they frequently prevent the perforation of the tympanic membrane. A hot water bag is applied to the ear after the bougie is inserted to hasten its solution.

NEW YORK STATE MEDICAL LIBRARY

Edited by Miss Ada Bunnell, B. L. S.

Hours of opening. The library is open for readers and borrowers each week day from 8 A. M. to 10 P. M., including Saturdays and holidays, except during July and August, when it closes at 6. P. M.

Loans. Books can be lent to any registered physician, but will be delivered only on personal application or on a written order, by which full responsibility for books so delivered is assumed.

Loans outside of Albany. Books will be lent by the medical library to any registered physician outside of Albany, provided:

1. That such precaution be taken in packing, as to guard against any probability of injury in transportation.
2. That the medical library shall not pay postage or express either way.

The library is collecting articles on minute subjects and will be glad to receive gifts of reprints of articles in magazines from authors or publishers.

List of current periodicals added during the past year

Deutsches archiv für klinische medizin. Leipzig.

International journal of surgery; devoted to the theory and practice of modern surgery and gynecology. New York.

Journal de psychologie normale et pathologique. Paris.

Journal of comparative neurology and psychology. Granville, Ohio.

Journal of infectious diseases, founded by the memorial institute for infectious diseases. Chicago.

Journal of tropical medicine. London.

Montreal medical journal.

Optical journal and the focus. New York.

Revue neurologique, recueil de travaux originaux, d' analyses et de bibliographie concernant la neurologie et la psychiatrie. Organe officiel de la société de neurologie de Paris. Paris.

Review of neurology and psychiatry. Edinburgh.

The trained nurse and hospital review, an institutional journal representing the hospitals of the country and the nursing profession. New York.

Gifts

Besides gifts of books, serials and pamphlets from authors, publishers and medical societies, the library has received valuable additions from the following Albany physicians: Drs. Hun, Ward, Vander Veer, Van Rensselaer and Pearce. Of special value were the volumes of bound periodicals from Dr. Hun:

Archiv für psychiatrie und nervenkrankheiten. v. 1-35.

Archives de neurologie. v. 1-26.

Berliner klinik. 1889-1900.

Centralblatt für bakteriologie, parasitenkunde and infektionskrankheiten. v. 1-28.

Centralblatt für allgemeine gesundheitspflege. v. 1-10.

Centralblatt für die medicinischen wissenschaften. v. 1-38.

Centralblatt für physiologie. v. 1-5.

Jahrbücher für psychiatrie. v. 1-16.

Psychiatrisches centralblatt. v. 1-8.

Journal of nervous and mental diseases, 1886-1896.

Klinische zeit und streitfragen, 1887-1895.

Le progres medicale, 1885-1890.

A box from the exchange department of the association of medical librarians, containing both bound and unbound numbers of periodicals, helped to complete some of our sets.

The total number of volumes given during the year, beginning October, 1903, was 695.

VOL. XXV NOVEMBER, 1904 No. 11

ALBANY MEDICAL ANNALS

Original Communications

THE GENESIS OF INSANITY.

The Vice-President's address to the Medical Society of the County of Albany at the Semi-Annual Meeting held in the State Medical Library, October 11, 1904.

BY J. MONTGOMERY MOSHER, M. D.

Mr. President and Members of the Society:

First permit me to thank you for the honor of election to this office, which I feel is undeserved. In appreciation of your favor I pledge my best efforts to promote the welfare of our Society.

The evening is an auspicious one. Through the courtesy of the Director we have been invited to hold a meeting in the State Medical Library. This is, in a way, an official recognition of the importance to us of this library, and of the purpose of the State to promote the interests of our profession by the development of its literary side. We owe it to ourselves, and to this library, that we use every effort, individually and collectively, to assist in placing it upon the highest plane of excellence. We must realize that the efforts of the library officials are disinterested, and that any expression of appreciation on our part will prove an encouragement to them, and facilitate the administration of this very important public department.

The County Medical Society is essentially an association of general practitioners, the number of limited specialists is small, and all are interested in medicine in its broadest aspects. But every physician realizes that in one direction or another his experience has resulted in the acquisition of knowledge which is peculiarly his own, upon which he may speak with assurance, and with hope that it may be utilized by others. Occasions like this are appointed for the presentation of some general topic, and I have thought that I might arrange in order and summarize certain facts bearing upon the causes of mental disease, which, scattered and isolated, are familiar to all, but, in the absence of proper adjustment, fail to instruct or to carry their deeply significant lesson. I wish to emphasize that phase of the subject relating to preventable causes, which lie in the voluntary disregard of the limitations of mental endurance. Boundless ambition is my theme. I speak of opportunity and the man, the one alluring, infinite, the other frail.

So much attention is concentrated upon the revelations of the microscope, and particularly upon the study of bacteriology, first on the life history of the micro-organisms, and then upon means of protection against them, that gross methods of research have fallen into disuse, and, in some measure, into contempt. But an instrument of precision is not always necessary to the discovery of a scientific fact, and much that is evident to the naked eye and unaided ear may be utilized to the advantage of humanity. This is particularly true of the predisposing causes of disease, which are neglected. If there were no predisposing causes there would be no disease. If man had not possessed in himself vitality to resist infective agents, the race must have been extinguished centuries ago. It is fully as important to determine the conditions under which the human organism succumbs to the virus as to seek the antidote after the bane had gained its hold.

The dominating influence in resisting disease is that of the nervous system. A healthy nervous system gives the greatest immunity; and this is true, not only of so-called nervous, but of constitutional, and even of local affections. But the disproportionate strain of daily life, of social and business habits, pleasure and employment, menaces this bulwark of health, and in this lies the distinction of our civilization from any which has preceded it. It is not probable that the forefathers, far-seeing as they are proved to have been, penetrated so remotely into the future as to realize the burden of individual responsibility growing from the self-evident truth that all men are created equal, not in capacity, but in the right, each to the products of his own hand or his own brain. The greatest prizes of power and distinction, in statecraft, arms, science, letters, wealth, seem temptingly near, only to recede like the fruits before Tantalus, each time the eager hand stretches forth to grasp them. Ruskin, with rare resignation, submits, and saves his health, but resents his inability to rest his ladder against the stars. "I am tormented," he says, "by what I cannot get said or done. I want to get all the Titians, Timtorets, Paul Veroneses, Turners and Sir Joshuas in the world into one great, fireproof, Gothic gallery of marble and serpentine. I want to get them all perfectly engraved. I want to go and draw all the subjects of Turners' 1900 sketches in Switzerland and Italy, elaborated by myself. I want to get everybody a dinner who hasn't one. I want to macadamize some new roads to Heaven with broken fools' heads; and I want to hang up some Knaves out of the way, not that I've any dislike of them, but I think it would be wholesome for them and for other people, and that they would make good crows' meat. I want to play all day long and arrange my cabinet with new white wool. I want something to amuse me when I am tired. I want Turner's pictures not to fade. I want to be able to draw clouds and to understand how they go—and I can't make them stand still nor understand them—they all go sideways. Farther, I want to make the Italians industrious, the Americans quiet, the Swiss romantic, the Roman Catholics rational, and the English Parliament honest."

It may safely be said that the victims of ambition,

"Athirst for wealth and burning to be great,"

constitute the majority of our patients. "Nervous exhaustion" is termed the "American disease," but only because in America has been anticipated the stress of life which is rapidly becoming universal.

The most striking illustration of the hazard willingly risked for personal betterment is shown in immigration. Long accustomed to the origin and marvelous development of our government on foreign ideals we have been slow to realize the change in character of the accessions to our population from abroad. For the year ending June 30, 1903, 857,046 immigrants arrived in the United States. Whereas in earlier years the greater proportion came from the sturdy races of Northern and Western Europe, three-fourths of these, or 610,813 persons, were from the destitute, vicious and ignorant of the Southern and Eastern nations. More than half settled in the states of New York and Pennsylvania, adding to the congested population of the large cities. They are subjected to the enervating influences of change of climate, unfamiliar language, strange faces, poverty, insufficient and unaccustomed food and unsanitary dwellings. It is stated in the report of the Commissioner-General of Immigration that "at least 200,000 (and probably more) aliens came here, who, although they may be able to earn a living, yet are not wanted, will be of no benefit to the country, and will, on the contrary, be a detriment, because their presence will tend to lower our standards; and if these 200,000 persons could have been induced to stay at home, nobody, not even those clamoring for more labor, would have missed them." The colonization of such alien communities in our great cities is "a menace to the physical, social, moral and political security of the country. They are the breeding grounds of moral depravity, the centres of propagation of physical disease." Even after the enforcement of the federal statute for the rejection and deportation of defectives, the startling statement is made by the Commission in Lunacy of the State of New York that nearly seventy per cent. of the admissions to the hospitals for the insane for the fourteen years ending with 1901, were of foreign birth.

But the evils of urban centralization are not confined to foreigners. Ambitious young men leave the parental farms to enter business and professional careers; countrybred girls are attracted to offices and factories. Deterioration of food (should we say adulteration?), of atmosphere, the substitution of sedentary for active pursuits, anxiety to succeed, with over-application, are soon followed by disaster. A personal history of this kind is frequent in cases of chlorosis, a disease with very pronounced manifestations by the nervous system.

Recent experiences with tuberculosis are also strikingly suggestive. Hygiene affords the only accepted and successful means of treatment, and drugs have been relegated to a subordinate and insignificant place. In crowded institutions tuberculosis has been a scourge. In several large hospitals for the insane, the experiment has recently been tried of isolation in tents. At Ward's Island this outdoor life has proved so beneficial that the plan has been extended to other classes of debilitated patients. These remarkable results have been attained not in the high, dry altitude hitherto regarded as essential, but in the moist, ocean atmosphere of New York City, not sixty feet above the sea level. At the Matteawan State Hospital a similarly satisfactory experience is reported. There is food for reflection in the thought that individuals so low in humanity's scale as the degenerate criminal, afflicted with two such terrible diseases as insanity and tuberculosis, can be restored to physical health and to an improved or normal mental state by the simple enforcement of hygiene—fresh air and good food. At the Ward's Island encampment not a case of ordinary cold or pneumonia developed during the winter of

1902-'03, the sole requirement for this protection being an outdoor life. Contrast the experience of a United States' Army officer, who remained strong and rugged during tent-life through two snowbound winters of Montana, and then succumbed to pneumonia in one of New York City's palatial hotels.

A native of Southern Europe came to Albany about six years ago. He needed to acquire the English language, which added to the burden of a responsible official position. For several years he allowed for sleep only four or five hours of the twenty-four, and he lost about thirty pounds in weight. In May, 1903, he was attacked by bronchitis, with hemorrhage, and the tubercle bacillus was demonstrated. In the following autumn and winter there were several hemorrhages, with physical signs of apical catarrh. The patient adopted, except as to change of climate, the accepted treatment of out-of-door air, rest, nutritious food and tonic medicines. In June, 1904, the symptoms had subsided, he was restored to his normal weight and had regained strength and color. We may inquire whether this apparent recovery from tuberculosis was not really a recovery from nervous debility of which tuberculosis was an incident; and if tuberculosis is to be overcome by the immunity of health, it is not to be prevented by the same means.

The first demonstration of an exhausted nervous system is perversion of sensation. Within normal limits this is fatigue, indicating and relieved by rest. When the resources of health are exhausted, and rest is no longer recuperative, fatigue is not felt and irritability takes its place. Nervous irritability is the first step of the pathological process. In the sensory sphere are areas of tingling, numbness, formication, "hot or cold flashes," or pain. Migraine, sciatica, brachial and intercostal neuralgias are too seldom regarded as the indices of constitutional debility. There is no better instance of the beneficent purpose of pain. It drives its victim to seek relief when other symptoms, equally threatening and equally suggestive to the physician, are ignored and neglected.

Motor anomalies appear early. Tremors, involuntary and irregular choreiform movements described as twitching, and peripheral spasms, are often prominent. One patient, leaving quiet business pursuits for a public office of annoying responsibility, complained that he could no longer sign his name on account of the cramps of the fingers.

It is difficult to discuss nervous exhaustion independently of its pre-eminent mental characteristics. The sensory and motor symptoms indicate disturbance of the highest functions of the nervous system, and are associated with morbid states of the mind. The patient complains that he is irritable and annoyed by trifles. Routine duties, which have never given concern, are burdensome and beyond accomplishment. This condition he attributes to two factors, worry and loss of memory. Investigation shows that the sources of worry are inadequate, and that worry is a pathological state and not a cause. That there is no loss of memory may be easily determined. The alleged forgetfulness is failure of the power of attention. The patient states that he cannot remember what he has read in the newspaper, that he cannot carry out a column of figures, signifying defect of concentration rather than of memory. Confused ideas so cover the field of consciousness that new mental impressions cannot be received. He says his "thoughts are running away with him." This automatic and involuntary activity of the mind continues into the night and sleeplessness ensues. He is told that his imagination is at fault, that he must exert his will-power, and not yield, as if voluntary control of the action of the brain were no less impossible than voluntary control of the action of the heart or of any other organ. If pallor, loss of appetite or dyspepsia is obtrusive, a tonic is obtained, but the first resort is too often to palliatives. Relief of discomfort and a misleading sense of security follow, while the underlying conditions are stealthily destroying health. Sleeplessness persists and hypnotic drugs are administered. From the vast array of modern synthetic products, the latest and most vaunted is selected as being *least harmful!* These aids to treatment are not infrequently given as specific and curative, with unreasoning faith that Art may provide means to permit unpunished the violation of Nature's laws. Intemperate excesses in dose gradually impress upon the clinical picture a complicating group of symptoms, and the original disease is masked. Or relief may be sought in stimulants. The response is immediate and elusive. Increased energy, the sense of growing strength, of well-being, and of exhilaration impose confidence which admits no thought of danger. The heightened tension of the nervous system demands indulgence, not only in increasing quantities of alcohol, but in every form of pleasure. The wages of these sins is general paralysis, that scourge of civilization in which the nervous energy of thirty years is expended in the fatal two.

The visceral symptoms become more assertive, and disturbance of digestion, palpitation, dyspnoea, form the basis of hypochondria. Gloom, suspicion and morbid fears torture the victim. He foretells ruin and disgrace, and his future appears hopeless. One patient stated that outlines of objects became indistinct, and then that the vision was actually blurred; this was followed by a sense of oppression originating in the hallucination that space was "closing in upon him: he felt that he had no room." He yielded to the sense of enveloping darkness and the idea that he was hopelessly lost. He passed into stupor, in which he made two frantic, ill-devised attempts at suicide.

If the patient be a woman a tempting series of complaints is presented to the gynecologist, and her lamentable condition is accentuated by the shock of an operation, or the disaster of the premature climacteric.

A change in manner is noticeable. For a few days or weeks it is observed that the patient's interest lags; that mistakes are made; that the gaze is abstracted and distant. Then comes the crisis. Without other warning, possibly at his desk, or in the night he breaks out in rambling speech and violent action. A young man about to be married invited his bachelor friends to dinner at a country cottage. He left the party, ostensibly to look after some details of the dining-room, and disappeared. Shortly afterward a building in the distance was seen in flames. The host was found wandering aimlessly in a swamp, his face, hands and clothing disordered and burned. He was bewildered and his remarks were disconnected and unintelligible. He then passed into stupor. It appeared that the death of his father, a year before, had placed upon him anxieties which he had not been trained to bear. He had lost sleep and weight. A few days before the calamity he was unable to give the simple directions for the removal of a piece of furniture from his office.

Physical exhaustion is rapid, extreme and critical, and the clinical picture is characteristic. The body is emaciated, and the skin sallow and harsh. The eyes are sunken and the pupils, when uninfluenced by drugs, dilated and sluggish. The tongue is parched, and, with the lips, cheeks and gums, crusted and dirty. A most striking symptom of the serious reduction of vitality is shown in the loss of resilience of the collapsed abdomen, so that when examination is made by palpation the impress of the fingers remains, as if the loaded intestines had become a devitalized mass.

The pulse is rapid and feeble. The temperature may be normal, subnormal or elevated. The urine is scanty and concentrated. The special senses are active, particularly those of sight and hearing, hallucinatory visions and voices flitting rapidly over the sensorium. Speech is disconnected, and only momentarily can the attention be controlled for observation of the surroundings. There is usually great motor restlessness and active resistance to care may be offered.

Thus may be sketched in outline the steps of exhaustion of the nervous system. At different periods other diseases may be simulated, as in cases in which the concentration of symptoms in one direction suggests a local lesion. Anomalies of the digestive functions constitute a group, which frequently misleads; cardiac and vagus neuroses may closely imitate organic disease, and the combinations of motor and sensory neuritic manifestations add the perplexities of hysteria. In the older literature was described a severe form of mental disease under the names Bell's mania, typho-mania, delirium gravé and acute delirious mania. It was characterized by the sudden accession, after a period of ill-health, usually in young people, of severe, but intermittent delirium. The paroxysms were associated with unconsciousness and the intervals were a striking restoration to sanity. The delirium became more insistent and an invariably fatal termination followed in from two to three weeks. This very rare affection appears to have been an acute infectious disease, allied with meningitis. It is to be differentiated, at any rate pathologically, from the acute delirium of nervous exhaustion, in which the auto-intoxication is secondary. Cases complicated by drugging are obscure, and simulate more serious disorders, as general paralysis. Occasionally the moderate delirium of acute specific fevers assumes misleading activity and violence. In rare cases convulsions occur, but the diagnosis of epilepsy is postponed in adults with a recent and acute history. A severe eclamptic attack, associated with violent delirium, followed a gonorrhoeal infection in one case, and in another, coprostasis only. Puerperal sepsis displays all degrees of cerebral irritation.

The varied mental states associated with general nervous debility are to be differentiated from forms of insanity based upon latent degeneracy. Alienists recognize in certain individuals an hereditary or acquired tendency, of which the climax is an outspoken attack of melancholia, mania or dementia. Striking examples of native inability to meet the increasing requirements of growth are found at puberty and adolescence, when emotional excesses occur, and curiously inconsistent combinations of excitement and depression terminate in permanent mental decay, to which the awkward term "precocious dementia" has recently been applied. Others, this critical period having been passed, are noted at maturity, in which judgment is defective, and a permanent state of mental obliquity, characterized by delusions and moral defect, technically called paranoia, takes the place of the normal mental life. In idiopathic mental diseases the exciting cause is wanting, or so slight as to reveal the native, fickle and unstable nervous system; the history does not reveal the long period of stress associated with neurasthenia.

The treatment of nervous exhaustion at any point of its course is indicated by its pathology. The keynote is REST. The plan of management should be, at all times, recuperative and reconstructive. Humoring the patient's whims should be guardedly permitted. The temporary alleviation of symptoms by sedatives and nervines is pernicious. Too frequently the sufferer needs bread and is given—valerian. He must learn, whenever irritability seems to require an outlet in motor activity, to train himself to quiet and repose, to control and not to waste his diminished strength. It is difficult to understand why work should be prescribed for exhaustion. Long journeys, amusement, change of occupation, cause an expenditure of nervous force which is detrimental and not curative. There is no place like home for the sick man, unless it is the hospital. Nutritious and easily digested food, of which milk and eggs are staple, should be frequently administered in quantities commensurate with the digestive power. Auto-intoxication should be combatted and prevented by abundant activity of the intestinal tract; and this excretion supplemented by the duty of the kidneys and the skin. Elimination of waste products is of prime importance. A man presented himself in a state of terror, saying that he had had an impulse, almost irresistible, to pitchfork his son. He was relieved of his severe mental tension by active catharsis. He relapsed, and was cured by the same means. The function of elimination may be promoted by electricity, massage or other passive movements. The real object of these therapeutic means is the stimulation of muscles and skin, and the extent of application is measured by the toleration of the patient. They may be abandoned when active motion and calisthenics or gymnastics can be undertaken. At least four pints of water should be taken daily, and this should be measured. In extreme cases, with delirium, six or eight ounces of water may be given every hour during wakefulness, until the tongue is clean and moist. Plunge baths, when available, are most helpful. A prolonged warm bath at night promotes sleep, which follows these rational measures and should not be induced by drugs.

The response to this line of treatment is surprising and gratifying. Complaints last only a few days and progress is then noted almost hourly. One, two or four hours of restless, interrupted sleep in the first twenty-four are replaced at the end of a week by eight or ten hours of refreshing repose. Color, strength and weight return rapidly, and in one, two or four months all acute symptoms have subsided, and the patient is apparently restored to health. Vigor is still wanting, and the severe storm to which the nervous system has been subjected is revealed by rapid tiring. This is the warning that care and moderation must be exercised for at least one year, for the avoidance of relapse.

The physician may now congratulate himself and his patient that a life has been saved and a mind restored. But his whole duty has not been done. Underlying the critical attack was ignorance of the causes of the disaster and of the limitations of endurance. These should be critically and exhaustively studied. Inquiry into business and social habits may be offensively searching, but is none the less imperative and within the physician's privilege. The amount of work which may be safely done is determined. Beyond this lies disaster. If ideals be sacrificed and the aim of ambition lowered, consolation is found in the happiness of health. It is not given to man to surpass his destiny. The greatest service is done in establishing the relations of the individual with his environment, and in securing protection from besetting ills, not only in the more tangible forms of infections and injuries, but in the remote, insidious and invisible processes which slowly destroy. There is no higher function of the physician than the determination for his patient of the position in life in which it has pleased God to place him. Aspirations beyond this are fatal, and well appreciated by the poet:

"Oh, sons of earth! attempt ye still to rise,
By mountains pil'd on mountains, to the skies?
Heaven still with laughter the vain toil surveys,
And buries madmen in the heaps they raise."

THE NEW YORK STATE MEDICAL LIBRARY.

Read before the Medical Society of the County of Albany, at the Semi-Annual Meeting held in the State Medical Library, October 11,1904.

BY DUNKIN VAN RENSSELAER JOHNSTON, A. M., L. H. D.,
Reference Librarian.

Called upon suddenly to take the place made vacant by Mr. Dewey's inability to attend this meeting, it must be clear to you that I can make no claim to being prepared on my subject. By this I mean that I have not considered the subject from your point of view or from any point of view but my own. From my own professional standpoint I have examined the subject of the relative value of medical and other professional libraries and have reached a conclusion which seems to me to be indisputable, that the maintenance of a special medical library is not only a permissible field for state activity but is in the nature of a clear duty and an obligation on a civilized government. There may be some flaw in my reasoning, though, because the fact remains that this medical library here in Albany is the only state medical library in the United States, excepting a small collection in New Hampshire. Of course there are other medical collections, some of them very valuable, but for the most part they are the property of societies having limited membership or are under the control of educational institutions. With the exception of the great library of the surgeon-general's office in Washington, our own collection is the only government-supported medical library in this country, excepting the 3000 volume library in New Hampshire. Many of our states support excellent historical libraries and all have law libraries. Why are not medical libraries so generally found? Of course, one may argue on this showing that a medical library can not be as important to a physician as a law library is to a lawyer, but from a librarian's standpoint this seems inconceivable. I am more inclined to believe that the medical profession lacks some cohesive power of acquisition, which the lawyers have. Every field of human activity must have its literature, and without access to this literature, no worker can intelligently prosecute his investigations. If a state can and must maintain universities, laboratories and asylums, in which medical science is studied, it seems to a librarian that it can with propriety and must of necessity maintain libraries to aid in such investigation and make available for the present and all future time its results. The answer to the question as to why these libraries do not exist must be sought from the physician and not from the librarian. I intend nothing invidious by this. Our medical library here, frankly attributes its founding and support to the interest of the medical men of the state, acting in great measure through the state medical societies and actuated largely by a force emanating from the physicians of Albany and vicinity.

To you, gentlemen, we look for support and added interest. We hope and expect to serve your wants to the best of our limited abilities, and to gain your good will and regard. We trust, too, that an appeal to you in *forma pauperis* will not be disregarded. Any reasonable being must know that 13,000 volumes on medicine together with 7,000 pamphlets, which in round numbers is the strength of this library in medicine, is not a collection fit for the dignity, or adequate for the needs of the State of New York. Moreover it does not take much of a head for mathematics to figure out how many volumes can probably be added with an annual appropriation of $3,200 from which must be deducted the salary of a librarian and the cost of binding and repairs. I am not offering this as an excuse for any of our shortcomings, if there are any, like the farm laborer who excused his drunkenness on the ground that his employer had no right to demand all the Christian virtues for $30 a month. I am simply stating a fact of importance to you. No one can have much or any interest in a medical library save a librarian or a physician. The man in the street expects, of course, a library to have anything he may call for, just as he expects with unreasonable confidence that the physician can produce at once a remedy for any ill, but he certainly is not going to aid you or me by act or argument in getting an appropriation of money for the simple reason that he has no direct interest in medical literature. To the layman medical books are not interesting and the only impression one can derive from reading them is that one has several diseases, all of them necessarily fatal. If this library is to thrive and grow as it should, it must be by our combined action and interest. We for our part must make the library usable. You must make it useful. Together, I trust, we can make it an object of interest and pride to the people of the state and of tender and generous regard to the legislature. I think it is only fair and just that we look to the Albany County Medical Society and the other members of your profession in neighboring counties to aid us; to aid us by stimulating interest, by giving us, when you can, books and pamphlets, by disseminating throughout the state some idea of our needs, so that physicians may send us material, which perhaps they would not longer want, but which probably would be of service here, and above and beyond all other things, to aid and support us by using this library. I do not charge that it is not used. It certainly is used, and well used too. It may be that many of you use it to the full value of our collection. I know, of course, that many private collections in the hands of specialists are better than ours. We all understand, too, how time presses, but I am certain that this collection could and should be used more than it is. And please remember that there is something in a library beyond the books. I mean the librarian. If you will call upon us at all times for aid, you will often find that a person trained in bibliography will be of great assistance to you. There is no science so well catalogued and indexed as medicine, but I presume that very few people outside the library profession understand what this bibliography is or how to use it. Much literature not in this library we can obtain for you from the surgeon-general, if your wants are sufficient to warrant you in paying the transportation charges and of such a character that you can wait the necessary three or four days. We will always be glad to assist you in looking up references and in trying to get the books, and this will serve a double purpose, first in showing you how nice it is to get a thing at all, and secondly, how much nicer to have it when you want it. And please remember, too, that you can aid this work here by spreading through your profession a knowledge that the things we are willing to do for you here in Albany, we are willing to do for any physician in any part of the state. I have the faith to believe that if the physicians of New York could know what we are trying to do here for their profession in the state and could understand what the wants necessary to carry out our work are, that the wants of this library would be quickly supplied. Books in all departments of a library are apt to be expensive but I think that medical books are the most expensive excepting such specialities as art and architecture. If a library is to furnish literature for a learned and highly specialized profession in all departments and in all languages, and is to keep this literature well bound, catalogued, shelved and guarded, the cost must be considerable. You can aid us greatly by making this fact known. Very few people understand the cost of books and of library administration, and to many an appropriation of $3,200 looks large. As a matter of fact, $3,200 will not go half way toward keeping a medical collection up with the times, and half-way measures do not satisfy New York state. Any explanation of this from us might possibly be taken as an excuse or as an argument based on self interest, by people not versed in such matters. A well voiced statement from the medical profession could not be so considered.

Finally, gentlemen, here is the library. It is for the use, practically for the exclusive use, of your profession. We are trying in every way to make it of value to you, believing that you, in turn, by making it of value to others, will cause us both to gain added regard, esteem and support from the people of the state.

CONCERNING HEMAGGLUTININS OF BACTERIAL ORIGIN AND THEIR RELATION TO HYALINE THROMBI AND LIVER NECROSES.*

By RICHARD M. PEARCE, M. D.,

AND

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Elsewhere, one of us[1] has described the hemagglutinative power of various cytolytic immune sera and the relation of the red blood corpuscle thrombi (hyaline thrombi) resulting from the injection of such sera to focal hyaline necroses of the liver. The distinct character of the liver lesions thus produced, and the fact that they could be explained only by the presence of agglutinated red blood corpuscle thrombi, suggested the possibility that similar lesions occurring in various infectious diseases might be due to the development of hemagglutinins of bacterial origin. In order to test this supposition we have attempted to demonstrate the presence of hemagglutinins in filtrates of bacteria treated in various ways, and, by the injection of the same into animals, to produce agglutinated red blood corpuscle thrombi and associated liver necroses.

It is not our intention to go into the general literature of these subjects, but merely to touch upon those points which relate to infectious conditions. The more important views concerning liver necroses may be found in the papers of Flexner,[2] Mallory,[3] Box-

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*This study has been conducted under a grant from the Rockefeller Institute for Medical Research. Published also in the *American Journal of the Medical Sciences, October, 1904* meyer[4] and Opie.[5] That the so-called hyaline thrombi may be composed of altered and fused red blood corpuscles we consider to be definitely established. The recent studies of Flexner,[6] Boxmeyer, and Pearce offer conclusive evidence of such origin and support the earlier observations of Klebs[7] and Ziegler.[8] The occurrence of hyaline thrombi in connection with various infectious and toxic conditions has been emphasized by Welch,[9] who, in his summary of the literature, mentions particularly infections with S. pyogenes aureus and B. cholerae suis, and offers a suggestion concerning their origin from red blood corpuscles. In a later discussion[10] of the subject he brings forth the hitherto unpublished observations of Fisher concerning the plugging of small vessels by agglutinated red cells as the result of injecting typhoid bacilli, and calls attention to the evidence in favor of the interpretation of many of the hyaline thrombi as derived from fused red blood corpuscles. Other important observations are those of Flexner, who found similar thrombi in the intestine of typhoid fever, in bronchopneumonia and in experimental diphtheria; and also of Boxmeyer, who could distinguish, in the livers of rabbits dying of experimental hog cholera, between necroses due to endothelial cell thrombi and those due to agglutinated red blood corpuscle thrombi. The hyaline thrombi occurring in various intoxications, due to either organic or inorganic poisons, and in toxic conditions of doubtful origin, as eclampsia, are undoubtedly of similar nature; but as they do not come within the scope of this study, will not be further considered.

Of considerable historical interest in connection with this question of the occurrence of red blood corpuscle thrombi in the course of infectious diseases are the observations of Hueter,[11] made in 1873. As the result of his studies, to which attention has recently been called by Welch,[10] Hueter came to the conclusion that clumping of red blood corpuscles, causing permanent or transient occlusion of capillaries and small vessels ("glöbulose Stase und Embolie") occurred not uncommonly in septic and other fevers. His theory that this phenomenon constituted the underlying basis of fever has never gained acceptance, but the observations are of interest in connection with our recently acquired knowledge of bacterial hemagglutinins. v. Recklinghausen[12] considers this globular stasis of Hueter to be analogous to a condition found in the capillaries after transfusion of alien blood, and which he describes as an "agglutination" of red blood cells.

In planning this investigation it was evident that as necroses of the liver are most frequently associated with infections by the bacillus of typhoid fever and the bacillus of hog cholera, the bulk of the work should be done with these organisms. In order, however, that no opportunity might be lost, the literature dealing with bacterial hemolysins was examined in the hope of finding reference to organisms which produced also hemagglutinins; of twenty-nine such investigations[13] but six[14] refer to the production of hemagglutinins by bacteria. Kraus and Ludwig found that bouillon cultures of S. pyogenes aureus and Vibrio Paris had the power of agglutinating red blood corpuscles *in vitro* in from ten to twenty-four hours at room temperature. The mass which settled at the bottom of the tube was seen upon agitation to be composed of small clumps of red blood corpuscles which could not easily be disintegrated. The agglutinin they considered to be independent of the hemolysin; but, on the other hand, they state that organisms which do not hemolyse also do not agglutinate. Small amounts of the cultures caused agglutination without hemolysis. Volk and Lipschütz, working with staphylolysin and vibriolysin, describe agglutination in connection with incomplete hemolysis of rabbits' blood, but did not observe it with other bloods. Volk, as a result of his observations, comes to the conclusion that agglutination is due not to a specific body, but to non-isotonicity of the fluid. Calamida states that no agglutination precedes the hemolysis caused by bouillon cultures of the chicken-cholera bacillus. Flexner mentions agglutinins of low activity in filtrates of B. pyocyaneus, B. typhosus, and S. pyogenes aureus. Kayser, in his study of colilysin, observed a clumping of red cells in connection with incomplete hemolysis, but not when complete solution occurred. Of greatest interest, however, and very suggestive, is the observation of Eisenberg,[15] who found the blood of an individual with a generalized pyocyaneus infection to be both auto-agglutinative and iso-agglutinative.

As the result of this survey, it seemed advisable to utilize B. pyocyaneus and S. pyogenes aureus in addition to B. typhosus and B. cholerae suis; and these, with B. dysenteriæ and S. pyogenes, constituted the group of organisms finally selected for study.

METHODS. In previous attempts (Reed,[16] Flexner, Mallory, and Boxmeyer) to produce liver necroses by the injection of microorganisms, either the living culture, grown in the ordinary way, or its filtrate has been used. With the use of the former it has been difficult to distinguish between the direct action of the organism and the effect produced by its toxin; with the latter the action of intracellular toxins has been excluded. In our experiments the direct action of the microorganisms has been eliminated by the use of filtered fluids, and an attempt has been made to obtain the intracellular constituents of the bacterial cells by the utilization of methods destined to cause its disintegration. Various writers have described methods by which the bacterial cell is destroyed and its receptors liberated. Of these methods we have tried, with certain modifications, the processes of autolysis described by Conradi,[17] Neisser[18] and Shiga, and Brieger and Mayer.[19] The various organisms have been grown for twenty-four to seventy-two hours on agar in large flat flasks having a surface of twenty by eight centimetres. The growth on several flasks, usually three or four, has then been scraped off, subjected to 55° C. for forty-five minutes, and placed in tubes containing 0.85 per cent. salt solution at a temperature of 37.5° C. for two to three days. In some instances the fluid has stood for longer periods, varying from one to seven weeks. The fluid has then been filtered (Chamberland B. and F.) and injected intravenously into animals after testing its agglutinative power *in vitro*. At various stages of the process suitable controls were made to demonstrate absence of contamination and the efficiency of the filters.

In addition to this method of growing the organism, an attempt was also made to stimulate the production of hemagglutinin by previously growing the organisms in media containing red blood cells. This method was suggested by the theory of "bacteriogenic cytotoxins," advanced by Welch in his Huxley Lecture: "Certain substances of the host of cellular origin, assimilated by the parasites through the possession of haptophore groups with the proper affinities, become anchored to receptors of the parasitic cell, which, if not too much damaged, is thereby simulated to the overproduction of like receptors; these excessive receptors of the parasite, if cast off into the fluids or the cells of the host, then constitute intermediary bodies, etc." The writer further states: "by a similar mechanism it is possible that parasites may be stimulated to the production also of antibodies other than cytotoxins, such as various agglutinins, precipitins, antienzymes—all adjusted against the host."

Assuming that if this hypothesis might apply to organisms growing in living cells or fluids, it might hold also for those grown on cells outside the body, typhoid and hog cholera bacilli have been grown in various blood preparations. These include both defibrinated and washed blood added in various proportions to salt solution, and fresh sterile rabbits' organs. The period of growth in the various blood mixtures varied from twenty-four to seventy-two hours; in some instances inoculations into fresh blood solutions or upon fresh organs being made on each of three successive days. The sterile organs were prepared according to the technique described by Flexner.[20] By these various methods it was hoped that the organism would be stimulated to produce agglutinins and that this power would be retained during the subsequent growth on agar, giving in the finished autolyzed product, a fluid of appreciably augmented agglutinating power. Observations supporting this theory have been made by Marmorek and by Simon, who found that streptococci grown in media composed of leukocytes alone, or with bouillon added, secrete a toxin of considerable power. Simon[21] believes that the streptococcus in order to secrete toxin must meet a certain resistance to its development, and that this resistance is furnished by something in the leukocytes. This explanation, put in the terms of Ehrlich, corresponds to Welch's hypothesis. Our attempts to produce free agglutinin receptors by growing the organisms in blood we consider analogous to Simon's method of producing toxin by growth in leukocytes.*

Another method employed was the growth of an organism in heated rabbit serum. This was suggested by the observation of Besredka,[22] that the streptococcus produces an hemolysin when thus grown.

Results. The tests for agglutination were made by adding nine parts of the various filtrates to one part of blood. Observations were made at room temperature and at 37.5° C. at varying periods up to twenty-four hours. The clumping of red blood corpuscles by bacterial hemagglutinins is of slight degree as compared with that produced by various cytolytic immune sera. The powerful agglutination of the latter is never seen, and for this reason more careful comparison with controls is necessary in order to detect slight differences in reaction. This feeble activity renders it difficult to make definite statements concerning some of the organisms studied. While all (B. typhosus, B. cholerae suis, B. pyocyaneus, B. dysenteriæ, S. pyogenes aureus and S. pyogenes) in the majority of tests, *in vitro,* showed a slight agglutination as compared with controls the effect of filtrates of B. dysenteriæ, B. cholerae suis and B. pyocyaneus was so slight as to be considered doubtful. With other organisms the agglutination was more evident, being most distinct with filtrates of S. pyogenes. Upon microscopic examination (hanging drop) the clumping caused by the streptococcus was always in the form of massive, more or less branching, rouleaux; while with all other cultures an irregular agglutination of a small number of corpuscles was seen. The agglutination due to the streptococcus could be seen after fifteen to twenty minutes, as the corpuscles settled, while with the other organisms it could be seen only upon agitation after a considerable period of time. More definite results were obtained with rabbits' blood than with dogs' blood.

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*Another point in favor of this theory of bacteriogenic antibodies is the observation of Theobald Smith (verbal communication) that recently isolated cultures of the hog-cholera bacillus have a greater power to produce liver necroses than have old cultures. Accepting Boxmeyer's work on the relation of agglutinative red blood corpuscle thrombi to such lesions, the explanation naturally suggested is, that residence in the animal has stimulated the power of the bacillus to produce agglutinin.

Of unusual interest and very suggestive are the agglutination tests with filtrates of typhoid bacilli previously grown in blood suspensions and on fresh sterile organs; though carried out in but a small number of tests, they appear to be confirmatory of Welch's hypothesis mentioned above. These filtrates, especially those of bacilli grown on sterile organs, exhibit an appreciably greater power of agglutination than the filtrates of organisms grown on agar only.

While no effort was made to study especially bacterial hemolysins, it is of interest that the autolytic products of bacteria as here prepared have never caused hemolysis. This result is in harmony with the observations of Jordan,[23] Williamson[24] and others who hold that the hemolysis produced by many bacterial filtrates (B. typhosus, B. pyocyaneus) is to be explained by the presence of an alkali elaborated in the growth of the organism. The filtrates used in our tests have all been faintly acid to phenolphthalein.

The animals selected for the injection experiments were dogs and rabbits; the former receiving five to twenty cubic centimetres (dose 1:1514 to 1:235) of the filtrates in either the saphenous or mesenteric vein; the latter one to twenty cubic centimetres (dose 1:1790 to 1:64) in either the mesenteric or marginal ear vein. In all, twenty-nine injections have been made; in no instance did death occur as the immediate result of the injection. Necroses of the liver occurred in ten of the animals. Two of these we have thought best to exclude because of associated coccidiosis, although the necroses appeared to be entirely independent of the parasitic invasion; another has been excluded also because of the chronic character of the lesion. The remaining seven cases exhibited typical necroses; two occurring in dogs and five in rabbits. These lesions followed the injection of filtrates of the typhoid bacillus in three cases, of the hog-cholera bacillus in three cases, and of the dysentery bacillus in one case. Filtrates of the B. pyocyaneus, S. pyogenes aureus, and S. pyogenes did not cause necroses. These necroses are not always visible to the naked eye, but when seen macroscopically they appear as miliary points, or occasionally as round or oval areas or linear streaks of grayish color, and distinctly separated from the normal liver tissue. They are very few in number compared to those produced by the agglutinins of cytolytic immune sera, and are usually limited to the superficial portions of the liver. Portions of the liver in contact with other lobes or adjacent organs are more frequently involved than the free surfaces. Histologically, the liver cells exhibit a hyalin necrosis, the nuclei being entirely destroyed, or evident merely as faint rings; fragmented or pyknotic nuclei were seldom seen. In many of these areas the vessels are filled with red blood corpuscles more or less altered and fused, and suggestive of hyaline thrombi. This condition, however, is not constant, and is not so evident as in the necrotic lesions produced by cytolytic immune sera. On the other hand, larger vessels, especially the smaller branches of the portal vein, contain typical agglutinative red corpuscle thrombi more or less completely occluding the vessel. Similar thrombi of small vessels have been seen in other organs, as the kidney, spleen, and lymph nodes, but without definitely associated lesions. Other thrombi, as those composed of endothelial cells, fibrin, etc., have not been seen in the liver.

Fatty changes in the liver and kidney, intense congestion of the spleen and lymph nodes, and a proliferation of the endothelial cells of the lymph sinuses have been found not infrequently after the injection of typhoid and hog cholera filtrates. A relation between these lesions and the injected fluids cannot, however, be readily demonstrated; the proliferation of endothelial cells, especially, is not infrequent in apparently normal animals. That some serious injury to the kidney is brought about is indicated by the appearance of albumen in the urine after the injection of filtrates of B. typhosus and B. dysentriæ.

The results of the injection of filtrates of typhoid and hog cholera bacilli grown upon blood media, while very suggestive, are not conclusive, owing to the small number of observations. But six filtrates so grown were injected. Filtrates of the typhoid bacillus grown in blood suspensions, while possessing an increased agglutinating power *in vitro,* did not cause necroses upon injection; on the other hand, two different filtrates of the same culture grown for several days on sterile rabbits' organs caused the most extensive lesions observed in the course of this investigation. The bacillus of hog cholera grown in blood suspensions caused, in one instance, lesions in the liver. The attempt to produce necroses with such filtrates has therefore been successful in three of six experiments; while with filtrates of the same organism grown on plain agar necroses resulted in three of twelve attempts. These results are suggestive in connection with the increased agglutinating power observed *in vitro,* but the small number of experiments does not warrant definite conclusions.

Filtrates of B. typhosus grown in heated rabbit serum produced no lesions upon injection into rabbits.

CONCLUSIONS. The filtered autolyzed products of a number of bacteria possess hemagglutinins of low activity; the formation of these may be stimulated by previously growing the microorganisms on media containing fresh red blood cells. The injection of these filtrates into dogs and rabbits is followed in some instances by the occurrence of liver necroses with associated fused red blood corpuscle thrombi; like thrombi may occur in other organs. These thrombi are similar in structure to those generally described as hyaline thrombi. The demonstration of agglutination *in vitro* and the association of the fused red cells with the liver lesions suggest a relation of the agglutinin to the lesions. This relation, however, cannot be considered as proven, for it is impossible to exclude the effect of toxins acting directly upon the liver cells; on the other hand, the similarity of the lesion to the very definite necroses caused by he powerful agglutinins of cytolytic immune sera strongly supports the possibility of such a relation.

The results observed by us are in accord with the slight potency of the agglutinin obtained. It is probable that methods which cause a more complete disintegration of the bacterial cells, as those employed by Vaughan[25] and by MacFadyan and Rowland.[26]

would yield an agglutinin as powerful, comparatively, as the toxins so derived, and capable of producing lesions more analogous to those caused by the agglutinins of cytolytic immune sera.

We present this communication, therefore, not as an attempt to prove that all hyaline thrombi are composed of fused red blood corpuscles, or that all liver necroses are caused by such thrombi, but rather to indicate the evidence in favor of the view that these lesions, in some instances, may be due to bacterial hemagglutinins.

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THE BENDER HYGIENIC LABORATORY

Albany Medical Annals
November, 1904

HISTORY OF THE BENDER HYGIENIC LABORATORY

By GEORGE E. GORHAM, M. D.

On June 27th, 1895, the corporation of the Bender Hygienic Laboratory was formed, the members being: Mr. Matthew W. Bender, Dr. Albert Vander Veer, Dr. George E. Gorham, Dr. Henry Hun and Hon. Robert G. Scherer.

The corporation was organized to take over from Mr. Bender twenty thousand dollars, a sum which Mr. Bender had offered to give for the erection of a laboratory building upon the condition that a suitable site be furnished. The board of trustees was immediately elected, and to its care were entrusted the generous gift of Mr. Bender and the carrying out of his wishes in securing a suitable site and erecting the building. A grant from the city of Albany for the spacious and beautiful grounds on Lake avenue now occupied by the laboratory was promptly obtained. Messrs. Fuller and Wheeler were employed as architects, and under the special supervision of Mr. Harry H. Bender the building was completed and dedicated on October 27th, 1896.

Dr. George Blumer, of the Johns Hopkins Hospital, was appointed director and under his supervision the laboratory was fully equipped with necessary apparatus. About one hundred microscopes, necessary tables, lockers, etc., were placed in the class rooms; steam and hot air sterilizers, microtomes, thermostats, freezing apparatus, etc., were added for general pathological and bacteriological work.

This generous outlay for the equipment of the laboratory was furnished by the faculty of the Albany Medical College. Such, briefly, is the history of the conception and birth of the Bender Hygienic Laboratory. Sixteen months from the time the subject was first presented to Mr. Bender for his consideration by his family physician the building was completed, and opportunity for one of the most important scientific works in the history of Albany was given.

The first director of the laboratory, Dr. George Blumer, and his assistants, Dr. Lartigau, Dr. Elting, Dr. Carey and Dr. Laird, under the direction of the Albany Medical College, arranged and carried out a course of instruction in pathology, bacteriology, histology and microscopy for the students of the Albany Medical College. These valuable courses of instruction are continued throughout each college year. They are, in fact, part of the regular curriculum of the Albany Medical College, and classes of forty or fifty students take the different courses annually. Dr. Blumer resigned in 1903, and the work has been continued by his successor, Dr. Richard M. Pearce, assisted by Drs. Stanton and Winne.

The Albany filtration plant for filtering Albany's water supply is under supervision of the laboratory, and daily examinations of the water are made.

By special contract with the city of Albany cultures from all cases of suspected diphtheria are examined and reported to the attending physician. Sputum from suspected cases of tuberculosis is also examined. Work of the same character is done for the State Department of Health of New York.

The examination of milk and water supplies in case of epidemics throughout the State is a part of the work done at the laboratory.

Hundreds of examinations of pathological specimens, blood, sputum and urine are annually made for the hospitals of Albany, while physicians in the surrounding country are constantly sending specimens for examination.

Added to this general work of the laboratory is special research work, some forty papers having been published during Dr. Blumer's directorate, and eleven during the past year by the present staff.

Thus may be sketched in a few words the scope of the work of the Bender Laboratory. But these words indicate only inadequately the importance of this institution and the great value for years to come of the gift of Mr. Bender in promoting the health and welfare of the community.

List of Publications From the Bender Hygienic Laboratory, From 1896 to 1903.

George Blumer, M. D.

1—Diseases Which Can be Directly Traced to Contaminated Drinking Water, Albany Medical Annals, March-April, 1897.

2—Primary Round Cell Sarcoma of the Epididymis, Albany Medical Annals, December, 1897.

3—Adeno-myoma of the Round Ligament, *American Journal of Obstertries,* no. 1, 1898.

4—Tuberculosis of the Stomach, Albany Medical Annals, March, 1898.

5—A System of Classification of Pathological Material, Albany Medical Annals, November, 1898.

6—A Case of Post-typhoid Bone Inflammation Due to the Colon Bacillus, *The Pacific Record of Medicine and Surgery,* November 15, 1898.

7—Tuberculosis of the Aorta, *American Journal of the Medical Sciences,* January, 1899.

8—A Case of Mixed Puerperal and Typhoid Infection, *American Journal of Obstertrics,* no. 1, 1899.

9—The Present Status of the Widal Reaction, Albany Medical Annals, January, 1899.

10—A Third Case of Tuberculosis of the Aorta, Albany Medical Annals, May, 1899.

11—The Relation of Trauma to Tuberculosis, Albany Medical Annals, November, 1899.

12—The Infectious Character of Tuberculosis and the Prognosis of Incipient Consumption, Albany Medical Annals, April, 1900.

13—Hæmorrhagic Infection in an Infant Due to the Typhoid Bacillus, *Journal of the American Medical Association,* December 29, 1900.

14—Bilateral Cholesteatomatous Endotheliomata of the Choroid Plexus, *Welch's Festchrift,* 1900.

15—Further Notes on Abnormalities of the Urinary System, Albany Medical Annals, January, 1901.

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22—Report of a Family Outbreak of Trichinosis, *American Journal of the Medical Sciences,* January, 1900.

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25—A Case of Periostitis of the Seventh Rib Occurring During the Course of Typhoid Fever, Albany Medical Annals, January, 1901.

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26—Hyperplasia of the Pituitary Body with Eburnation of the Skull. ALBANY MEDICAL ANNALS, March, 1901.

With A. MACFARLANE, M. D.

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37—The Acute Pneumonic Form of Tuberculosis, *American Journal of Medical Sciences,* May, 1900.

38—The Bacteriology of Gonococcus Infections, ALBANY MEDICAL ANNALS, March, 1900.

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With A. VANDER VEER, M. D.

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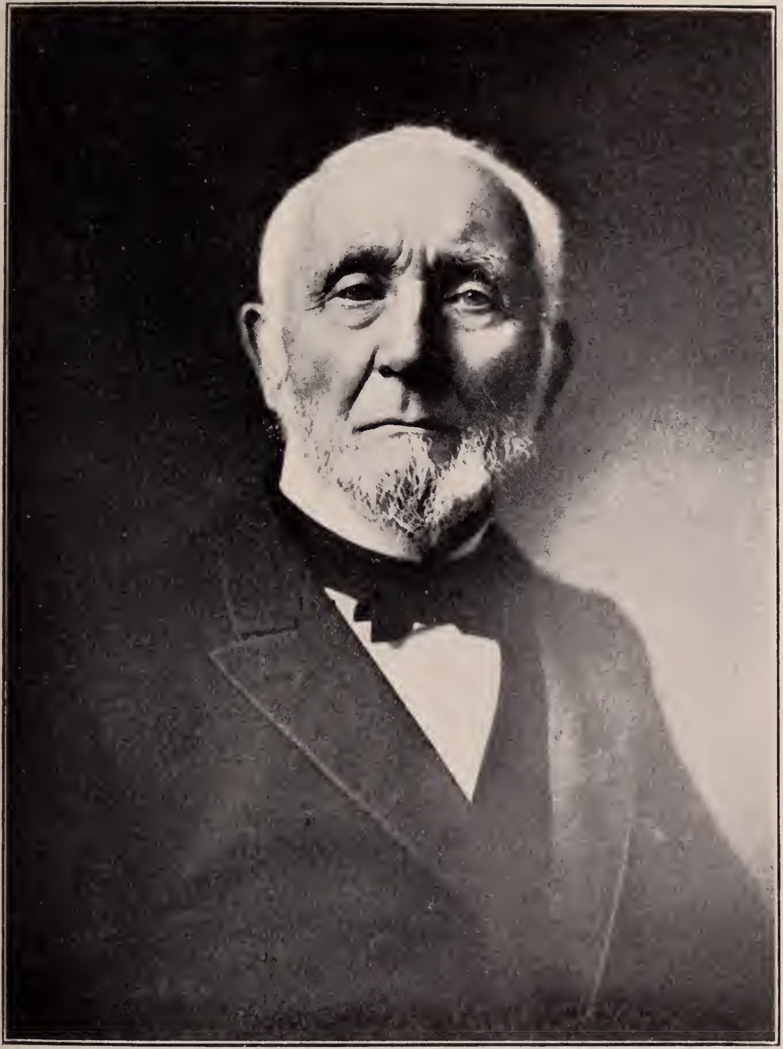

MATTHEW W. BENDER

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ARTHUR T. LAIRD, M. D.

44—Recent Studies Regarding the Morphology of the Diphtheria Bacillus, ALBANY MEDICAL ANNALS, 1903, xxiv, 251.

With CHARLES E. DAVIS, M. D.

45—A Case of Diphtheria, ALBANY MEDICAL ANNALS, 1901, xxii, 499.

HARRIS MOAK, M. D.

46—On the Occurrence of Carcinoma and Tuberculosis in the Same Organ or Tissue, *Journal of Medical Research,* 1902, viii, 128.

THOMAS G. DICKSON, M. D.

47—Concerning the Nature of the Small Cysts Frequently Found in the Peritoneum Covering the Fallopian Tubes, *American Journal of Obstetrics,* 1903, xlviii, no. 1.

BENDER HYGIENIC LABORATORY

ANNUAL REPORT OF THE DIRECTOR FOR THE YEAR ENDING AUGUST 31, 1904.

BY RICHARD M. PEARCE, M. D.

To the Trustees of the Bender Hygienic Laboratory:

I have the honor to submit my report for the year ending August 31, 1904.

Organization—The equipment of the laboratory and the organization of its work by my predecessor, Dr. George Blumer, were such that upon September 1st, 1903, I was able to enter upon my duties under the most favorable circumstances. The staff of the laboratory was immediately completed by the appointment, as assistants, of Edwin MacDonald Stanton (Iowa State College, B. S., 1898; University of Pennsylvania, M. D., 1903) and of Charles Knickerbacker Winne, Jr., (Johns Hopkins University, A. B., 1897; M. D., 1901). Early in the year it was evident that the clerical work had increased to such an extent that the full time of a stenographer would be required; and with your approval this service has been provided. It was also found that much valuable time was consumed by the members of the staff in semi-technical work which could be done as well at a moderate cost by a non-medical assistant. By arrangement with the faculty of the Albany Medical College the additional salary was guaranteed and the appointment was made. Both of these changes have aided greatly in the routine work of the laboratory.

Mr. Leonard M. Wachter was reappointed for the year 1904-'05 as assistant chemist and bacteriologist, in charge of the Albany filtration plant.

The Work of the Laboratory—This may be conveniently divided into routine examinations, under-graduate teaching, instruction to special students and original investigations.

The nature of the routine work of the laboratory is shown in the accompanying table which gives the source of the material and the number and character of the examinations. This table does not include the bacteriological studies carried out in connection with the autopsy work, the tests made for the milk committee of the Albany County Medical Society, or the examinations of "winter-killed" deer, made during the past winter for the New York State Forestry, Fish and Game Commission. Mr. Wachter's report of his chemical and bacteriological examinations, made at the filtration plant, have been included in his annual statement to the Water Bureau of the City of Albany and do not appear in this report.

TABULATION OF THE ROUTINE EXAMINATIONS MADE AT THE BENDER LABORATORY FROM SEPTEMBER 1, 1903, TO AUGUST 31, 1904

	State Dep't. of Health	City Board of Health	Albany Hospital	St. Peter's Hospital	Child's Hosp. and St. Margaret's House	Albany Orphan Asylum	Alms House	Coroner's Physicians	Physicians	
Sputum	272	35			2				32	341
Widals	106	10	77	5	2	2			34	226
Throat cultures	729	713				83			142	1667
Water, milk and ice	407		3		1	1			46	458
Miscellaneous examinations	5		52	2	2				69	130
Surgical specimens			939	19	3				42	1003
Autopsies			42	1	10	6	8	31	25	123
	1519	758	1113	27	20	92	8	31	390	3958

The examination of surgical specimens has been greatly facilitated by the general adoption of Wright's frozen section method which ensures the surgeons of an early report and also lessens the daily labor in the laboratory. The custom adopted by the Albany Hospital, at our suggestion, of forwarding with each specimen a printed form upon which is entered the important data concerning the tissue to be examined allows a more intelligent examination, and also enables us to keep more complete laboratory records. As will be seen by the accompanying table, the examination of material from the surgical service of the Albany Hospital constitute a large share of our routine work. For the performance of this work the hospital contributes neither service nor money. It has occurred to me that hospital and laboratory alike would be greatly benefited by the appointment of a pathological house officer whose duty it would be to assist in that part of the hospital work carried on in the laboratory. In return for this service the hospital should furnish him with room and board. This assistant should be a graduate in medicine and preferably one with post-graduate hospital training. Such an arrangement has been practiced for years at the Boston City Hospital which indeed has two pathological internes and in that institution has proved most satisfactory. I believe it might profitably be adopted by the Albany Hospital and respectfully suggest it to your board.

I wish also to call your attention to the great increase in the amount of work done for the State Department of Health. This increase of work has not been accompanied by an increase of appropriation; and the labor is out of all proportion to the compensation. I think an effort should be made to secure a larger appropriation. The rapid development of this work is shown in the following table, which is based on examinations made from September 1, to August 31st.

	Throat cultures	Sputum	Widal reactions	Water, milk, ice and sewage
1901-'02	222	33	11	90
1902-'03	807	71	50	184
1903-'04	729	256	123	412

The laboratory courses given during the past year (term of seven and a half months) to undergraduates of the Albany Medical School are as follows:

Pathology and bacteriology—Drs. Pearce, Stanton and Winne, eight and a half hours a week.

Normal histology—Drs. Stanton and Winne, six hours a week.

Clinical microscopy—Dr. Laird, two and a half hours a week.

Surgical pathology—Drs. Elting and Carey, two and a half hours a week.

Histology and pathology, in connection with the course in obstetrics—Dr. Lipes, two and a half hours a week.

Anatomy of the nervous system—Dr. Becker, one hour a week.

For the year 1904-'05 several changes have been made in these courses. The need of more detailed instruction in the methods of clinical microscopy has led to the division of this class into two sections and the appointment of another assistant, Dr. E. F. Sibley. The course in the anatomy and pathology of the nervous system has been placed under the direction of Dr. Stanton who will be assisted in this work, as well as in the course in histology, by Dr. Donald Boyd.

In connection with the course in pathology the most serious need is some arrangement by which post-mortem examinations may be made before the entire class. At present, this instruction can be given only to small sections at irregular intervals. It would appear possible, by combined action of the Albany Hospital, the faculty of the Medical School and the trustees of the laboratory, to arrange for proper facilities at the Albany Hospital. I respectfully suggest to the trustees the necessity of immediate action upon this question.

Of those who have availed themselves of the opportunity to work in the laboratory for considerable periods of time are Dr. Ellice McDonald, of Philadelphia; Mr. Leon K. Baldauf, of the Johns Hopkins Medical School; Dr. J. F. Rooney, Dr. E. F. Sibley and Dr. Donald Boyd, of Albany; Mr. Joseph L. Donhauser, Mr. Erastus Corning, Mr. C. W. H. Hacker and Mr. T. A. Hull, of the Albany Medical School; Mr. Jerome Meyers, of Dartmouth College; and Mr. W. E. Wright, of Liberty, N. Y. These gentlemen have assisted in the routine work of the laboratory, pursued special lines of study, or engaged in research work. To Dr. Ellice McDonald, we are especially grateful for valuable assistance during the first half of the year.

For the year 1904-'05 Dr. E. F. Sibley has agreed to serve as voluntary assistant in all laboratory work.

Original investigations in various lines of work have been carried out during the year. The expense of the experimental investigations has been defrayed by a grant from the Rockefeller Institute for Medical Research; a similar grant has been obtained for the year 1904-'05. The following papers have been published or are now in press:

George Blumer

DIRECTOR OF THE BENDER HYGIENIC LABORATORY, 1896-1903

Albany Medical Annals
November, 1904

1. **Pearce**, R. M., Concerning the Specificity of the Somatogenic Cytotoxins.
   (Conducted under a grant from the Rockefeller Institute for Medical Research).
   Journal of Medical Research, 1904, xxi, 1; also Albany Medical Annals, 1904, xxv, 576.
2. **Pearce**, R. M., The Experimental Production of Liver Necroses by Haemagglutinins, (*in press*).
   (Conducted under a grant from the Rockefeller Institute for Medical Research).
3. **Pearce**, R. M., and **Winne**, C. K., Jr., Concerning Haemagglutinins of Bacterial Origin and their Relation to Hyaline Thrombi and Liver Necroses, (*in press*).
   (Conducted under a grant from the Rockefeller Institute for Medical Research).
4. **Pearce**, R. M., The Islands of Langerhans in Congenital Syphilitic Pancreatitis.
   American Medicine, 1903; vi, 1020; also, Albany Medical Annals, 1904, xxv. 88.
5. **Pearce**, R. M., The Pathology of Diabetes.
   Albany Medical Annals, 1904, xxv, 329.
6. **Pearce**, R. M., Experimental Pancreatitis Considered in its Relation to Acute Lesions of the Pancreas in Man.
   American Medicine, 1904, vii, 853; also Albany Medical Annals, 1904, xxv, 389.
7. **Pearce**, R. M., Cancer of the Pancreas and Glycosuria; A Histological Study of the Islands of Langerhans, (*in press*).
8. **McDonald**, E., Complications and Degenerations of Uterine Fibromyomata.
   Journal of the American Medical Association, 1904, xlii, 1344; also, Albany Medical Annals, 1904, xxv, 515.
9. **Carey**, H. W., and **Laird**, A. T., A Peculiar Hypertrophy of the Prostate Accompanied by an Ascending Infection and Cysts in the Ureters, with a General Discussion of Ureteritis Cystica.
   Albany Medical Annals, 1904, xxv, 532.
10. **Stanton**, E. MacD., and **Shaw**, H. L. K., Infantile Inguinal Hernia of the Vermiform Appendix with Adhesion to the Epididymis.
    Albany Medical Annals, 1904, xxv, 589.
11. **Lipes**, H. J., A Study of the Changes Occurring in the Endometrium during the Menstrual Cycle.
    Albany Medical Annals, 1904, xxv, 94.

Other investigations not yet completed are: An Experimental Study of Hydrophobia, by Dr. E. MacD. Stanton; A Study of the Uric Acid Elimination in Gout, by Dr. A. T. Laird; Cancer of the Appendix, by Mr. Leon K. Baldauf; and An Investigation of the Giant Cells occurring in the Musculature of the Pregnant Uterus, by Mr. Erastus Corning.

In pursuance of a plan already submitted to you it is my intention to prepare for general distribution a volume which will contain the above papers. This volume will be known as "Studies from the Bender Laboratory," and with your financial support, I hope to make it an annual publication.

Improvements and Repairs—These have not been extensive. The need, however, of more space for the general work of the laboratory led me to convert the large room on the first floor, formerly occupied by the janitor, into an office for the stenographer and the proper storing of the laboratory records. The janitor has been given the room on the third floor, formerly a cloak room for the use of students. The latter have been provided for by placing hooks in the large hall off the class room of this floor. Three small private rooms intended for the use of persons conducting special researches have been procured by partitions isolating the unused portion of the large class room on the third floor. These assure more or less privacy and add to the desk space available for special work. Other improvements include an additional work table in the director's room, a work bench in the basement with vise and tools for the janitor's department, important changes in the arrangement of the animal room and additional shelving in various parts of the building. During the past summer all the floors have been filled and oiled, the wood work of halls and lecture room varnished, the walls of halls and office painted, and various repairs to the windows made. To prevent a repetition of the disastrous flooding of the basement which occurred during the freshets of last spring, the ground at the rear of the building has been raised and sodded and the walls and cover of the cellarway repaired. The appearance of the front of the building has been improved by cleaning the brick work and repointing the stone work and steps.

Gifts—A portrait of Mr. Matthew W. Bender, presented by Dr. George E. Gorham, has been placed in the lower hall; a series of fifty-one portraits, the gift of Dr. George Blumer, representing prominent workers in scientific medicine, in the large class room of the third floor; and a portrait of Dr. George Blumer, in the Director's room.

Editorial

> While he was Secretary of State Jefferson wrote his daughter concerning the treatment of her baby, who was ill. "Let me beseech you," he says, "not to destroy the powers of her stomach with medicine. Nature alone can reëstablish infant organs, only taking care that her efforts be not thwarted by imprudence of diet."
>
> WILLIAM ELEROY CURTIS
>
> *The True Thomas Jefferson*

The State Medical Library

By invitation of the Director the State Medical Library was placed at the service of the Medical Society of the County of Albany on the evening of October eleventh, and the semi-annual meeting was held there. Mr. Melvil Dewey, the Director, who intended to be present, was kept away by sickness, and in his absence, Mr. Dunkin Van Rensselaer Johnston welcomed the Society, and in a brief address presented clearly the purposes, claims and difficulties of the library. It is the good fortune of the ANNALS to publish Mr. Johnston's remarks in this issue, and the attention of its readers is urgently directed to what he said. It will be seen that organization has been effected and a large number of books secured, under the wretchedly inadequate appropriation of thirty-two hundred dollars a year. It may be readily understood why the government should provide for its legislators and other officials a perfect law library, but it is somewhat difficult to comprehend why the medical department should have been so neglected. Accessibility of the best and latest literature should be easy to all physicians, and Mr. Johnston's hints may well be carried home to every practitioner. A united effort should be made by individuals and societies to impress upon the legislature proper recognition of their needs in respect to this library. Its availability and the facility of securing the use of books and periodicals have been announced regularly in the ANNALS in a department established for its use during the present year and edited by Miss Bunnell, the medical librarian. Mr. Dewey's ideas have also been announced in a contribution published in the ANNALS of March, 1904, and in a letter to Dr. Boyd, the President of the Society, he writes: "I wish you would say, if there is opportunity, to your associates, how keenly I am interested in this medical library and how earnestly I desire to help its development." Dr. Andrew S. Draper, State Commissioner of Education, the executive of all the departments controlled by the Board of Regents, addressed the Society informally, expressed his interest in the medical library, and announced his desire to establish a "library on Capitol Hill second to none in this country." It should be understood that this library is not local, but is for the use of the physicians of the State of New York. In their efforts to develop it, the physicians of Albany act for the general good, and they should be heartily and energetically supported. The selection of the advisory committee consisting of Drs. Albert Vander Veer, Samuel B. Ward, Henry Hun, George E. Gorham and Arthuur W. Elting, carries the assurance of a wise and discriminating use of whatever moneys are appropriated by the State.

Public Health

Edited by Joseph D. Craig, M. D.

Department of Health—City of Albany, N. Y.

It is pleasing to report that the city is in a most healthful state with a low death rate.

It is to be again emphasized that it is unjust to this or any city, in which there is a large hospital receiving out-of-town patients, to include in the death rate of the city those out-of-town patients dying in such an institution. To include these deaths with the city deaths results in a death rate larger than the normal death rate of that city. In computing vital statistics of the deaths occurring in that locality, no matter what the circumstances are under which the deaths occurred they are taken in estimating the death rate.

Albany is thus credited with a death rate larger by one or two points than the narmal death rate of her inhabitants warrant. The normal death rate for the city of Albany during the month of September was 12.89, which is a most gratifying tribute to the healthfulness of the city. Including the non-residents dying in local institutions, the death rate was 14.96 for the same month.

Ninety-two births were reported to the Department, and there were 123 deaths. These figures would seem to indicate that either some physicians of the city are not promptly reporting births attended in their practice or the city population is slowly declining.

The health physicians have made a large number of calls during the month of September. There were 386 as against 191 a year ago, and but 172 in the year 1902. Seventy-two vaccinations were made by the health physicians. One hundred and fifty vaccination points were furnished by the Department to others for free vaccination.

Fifty-two inspections were made of mercantile establishments, and thirty-nine reinspections, making a total of ninety-one mercantile establishments investigated during the month. Twenty-five mercantile certificates were issued to children and ten factory certificates.

Aside from cases of typhoid fever during the month, which will be specially considered later, there is a very gratifying decrease in the number of cases of contagious diseases. It seemed probable last spring, if active methods were not taken, that the children of the city would be afflicted with scarlet fever during the coming winter. The efforts of the Department to get control of scarlet fever so far seems to have been attended with marked success. There were but two cases of scarlet fever reported during the month as against eleven for the corresponding month a year ago. There were nine cases of diphtheria reported as against twenty-one during the year 1903, and thirty-three during 1902, and forty-three during 1901. As for totals, even including typhoid fever, there were thirty-five cases of communicable diseases reported for September, while fifty cases were reported last year, forty-four the year before, and sixty-eight the year previous to that. Antitoxin was used in all cases of diphtheria reported.

During the months of August and September a considerable increase in the number of cases of typhoid fever reported was noticed. A study of these cases as taken from the collective investigation reports is as follows:

It is to be noticed that there is nothing distinctive as pointing to the source of contagion to be found in either the milk or the ice supply. In all there were forty-one cases of typhoid fever reported during these two months, and of these twenty-one, or about fifty per cent. were without question contracted outside of the city. Of the remaining twenty cases but two are found in that section of the city to which filtered water is supplied, while ten cases have been found in that section of the city supplied by mixed filtered water and the water from the gravity supply, and six cases are found in the lower section in which the water from the gravity supply is exclusively furnished. It seems to be evident from these statistics that the filtered water is above suspicion of causing the recent typhoid fever cases in this city, while that water which is mixed with water from the gravity supply leads to the supposition that it may be the cause of many of these cases of typhoid fever.

It is to be said in addition that one of the city's wells is believed to be in an unsanitary condition, and if the investigation now under way gives sufficient ground for action, the Department of Health will make public the location of the well and recommend that it be closed.

ABSTRACT OF VITAL STATISTICS, SEPTEMBER, 1904.

Deaths	1901	1902	1903	1904
Consumption	13	16	18	14
Typhoid fever	4	2	1	3
Scarlet Fever	0	0	2	0
Whooping-cough	1	1	0	0
Diphtheria and croup	3	1	1	0
Grippe	0	0	0	0
Diarrhœal diseases	10	9	3	9
Pneumonia	2	6	6	5
Broncho-pneumonia	0	1	0	0
Bright's disease	13	11	7	16
Apoplexy	13	3	6	9
Cancer	8	4	12	7
Accidents and violence	3	8	5	5
Under one year	25	19	19	19
Seventy years and over	22	14	26	18

Deaths in Institutions	1901	Non-residents.	1902	Non-residents.	1903	Non-residents.	1904	Non-resi. dents.
Albany Hospital	7	2	18	7	21	6	15	9
Albany Orphan Asylum	0		0		1		0	
County House	1		2		3		3	2
Home for Friendless	0		1		1		0	
Homeopathic Hospital	2		2		2	1	2	1
Little Sisters of the Poor	1		0		2		0	
Penitentiary	0		0		0		1	
Public Places	2	2	0		2	2	3	2
St. Vincent de Sales Orphan Asylum	0		0		3		0	
St. Margaret's House	8	1	4		4		1	
St. Peter's Hospital	6	1	4		2		4	2

	1901	1902	1903	1904
Total deaths	138	119	139	123
Death rate	16.78	14.47	16.90	14.96
Death rate less non-residents	15.59	13.62	15.81	12.89

Marriages		47
Births at term	87	
Still	4	
Premature	1	
Total	92	

WORK OF HEALTH PHYSICIANS

	1902	1903	1904
Assignments	40	57	63
Number of calls made	171	191	386
Vaccinations	35	74	72

INSPECTIONS.

In the Bureau of Markets and Milk, there were thirty-nine inspection made of markets, twenty inspections of public market, four inspections of slaughter houses, three inspections of hide houses, two inspections of rendering establishments, twenty-eight inspections of milk peddlers, five inspections of fish peddlers, three inspections of fish markets. There was found three fish market violations, and three notices were served on fish markets.

In the Bureau of Plumbing. Drainage and Ventilation there were 167 inspections made, of which 110 were of old buildings, and fifty-seven of new buildings. Thirty-six inspections were made of iron drains laid, eighteen of connections with street sewers, twenty-one of tile drains, two of urinals, thirty-eight of cesspools, forty-three of wash basins, fifty-six of sinks, thirty-nine of bath tubs, two of butlers' pantry sinks, three of trap hoppers in yard, seventy-five of tank closets. One hundred and twenty-four permits were issued, of which ninety-four were for plumbing purposes and thirty for building purposes. Fourteen plans were submitted, of which nine were of old buildings, and five of new buildings. Eight houses were tested on complaint, and fourteen water tests were made.

In the Bureau of Nuisances there were thirty-four complaints made, of which three were of privies, five of closets, seven of plumbing, six of water, one of filthy yards, two of filthy premises, two of chickens, five of pigs, and two of garbage. There were fifty-one inspections made, and fifty-four reinspections, making a total of 105 inspections. On reinspection ten nuisances were found abated, four were found cleaned up, and eleven complaints were found to have been made without cause. Twenty notices were served during the month, and fourteen cases were referred to the Commissioner of Public Safety for action.

CONTAGIOUS DISEASE.

Cases reported	1901	1902	1903	1904
Typhoid fever	21	8	11	19
Scarlet fever	3	1	11	1
Diphtheria and croup	43	33	21	9
Chicken-pox	0	2	1	3
Measles	0	0	4	1
Whooping-cough	1	0	1	2
Consumption	0	0	1	0
Totals	68	44	50	35

Fumigations: Rooms.......... 37 Houses.......... 13

Number of days quarantine for diphtheria:
Longest....... 63 Shortest....... 8 Average....... 2

CONTAGIOUS DISEASE IN PUBLIC SCHOOLS

	CASES REPORTED	
	D.	S. F.
School No. 4	0	1
School No. 6	2	..
School No. 10	1	..
School No. 12	1	..
School No. 14	1	..
School No. 17	1	..
St. Joseph's Academy	1	..
St. Mary's School	3	..

ANTITOXIN

Number of cases of diphtheria in which antitoxin was used	9
Number of cases of diphtheria in which antitoxin was not used	0

BUREAU OF PATHOLOGY—BENDER LABORATORY REPORT

Diphtheria	1902	1903	1904
Initial positive	29	9	4
Initial negative	21	13	19
Release positive	10	4	6
Release negative	10	11	7
Failed	4	2	0
Totals	74	30	36

TYPHOID FEVER—DURING AUGUST AND SEPTEMBER

Total number of cases of typhoid fever during Aug. and Sept.	41
Deaths from typhoid fever during August and September	5
Cases reported between the ages of 1 and 10 years	9
Cases reported between the ages of 10 and 20 years	13
Cases reported between the ages of 20 and 30 years	8
Cases reported between the ages of 30 and 40 years	8
Cases reported between the ages of 40 and 50 years	3
Cases reported from places where plumbing was reported defective	5
Number of cases in which the milk supply was ascertained	26
Number of individual milk dealers supplying milk	21
Cases remaining in the city continuously three weeks before onset of the disease	20
Cases supplied with water of the upper service	12
Cases supplied with water of the middle service	10
Cases supplied with water of the lower service	6
Cases in which the source of drinking water could not be ascertained	2
Cases in which the source of drinking water in addition to city water was a city well under suspicion	3
Total number of typhoid fever cases receiving ice	23

Society Proceedings

Medical Society of the County of Albany

The semi-annual meeting of the Medical Society of the County of Albany was held in the State Medical Library on Tuesday evening, October 10, 1904. The meeting was called to order by the President at 8:45 P. M. There were present Drs. Archambault, Bartlett, Bedell, Boyd, Case, Craig, Curtis, Dawes, Elting, Goewey, Hun, Laird, Lipes, MacFarlane, Manley, Mosher, Papen, Pearce, Roberts, Rooney, Ryan, Shaw, Theisen, Traver, Tucker, Albert Vander Veer, Ward, Winne.

Dr. THEISEN moved that if there were no objections the minutes of the last meeting be accepted as printed in the ANNALS. Seconded and carried.

Dr. SHAW reported on behalf of the Milk Committee that a number of inspections of the farms supplying certified milk had been made, and that one of them, the Gold Seal Dairy, had invariably supplied milk up to the standard while the other milk was discontinued. There is now, therefore, only one dairy having the right to use the Certified Milk label, that being the Gold Seal. The Committee intends to keep down the bacterial count of the certified milk to 5,000 in the winter and 10,000 in the summer. He also said that the owner of the Gold Seal Dairy was beginning to be encouraged as at the present time he was supplying forty-seven families with the certified milk.

Dr. HUN moved that the report of the Committee be placed on file and that the thanks of the Society be given the Committee for its most excellent work. Seconded by Dr. Theisen. Carried.

The Secretary then reported that he had received the application of Dr. Ephraim McKenna for membership in the Society and that the Board of Censors had favorably reported thereon. By vote of the Society, *nemine dissentiente,* Dr. McKenna was elected to full membership.

Dr. J. MONTGOMERY MOSHER then read the Vice-Presidential Address.

Owing to the unavoidable absence of Mr. Melvil Dewey, the Society was addressed by Mr. Dunkin Van Rensselaer Johnston on behalf of the Director of the State Library.

Dr. ANDREW S. DRAPER, State Superintendent of Education, who was present at the invitation of Dr. Mosher, then spoke in part as follows:

That he had not come prepared to make a speech and for that reason the Society could not expect very great things of him. He sincerely regretted the absence of Mr. Dewey in that he could without any doubt speak much more authoritatively upon the subject. His interest in the profession of medicine was very sincere in that for the past few years of his life he had come into very close and intimate contact with some of its best representatives. There is no profession that contains abler and stronger men and there is none that contains weaker and more worthless. The startling diversity of talent is remarkable. He is very desirous and anxious to aid in the uplift of the profession and to help fight its battles that it may conquer the ignorance which so often disgraces it. He had not yet fully developed with any confidence, a theory, touching the lines upon which this great State Library should advance. The importance of the subject demanded very careful consideration. The State Library should follow lines of evolution that could hardly be expected of local institutions. It is also, for this reason, hardly to be expected that any local institution would be able to accumulate a great medical library. He, as well as Mr. Johnston, saw no reason why the State should support so creditable a Law Library and not a medical one, save that it was impossible for a lawyer to do without an extensive library, whereas a doctor ordinarily did not need for the common practice of medicine so ready access to the literature of his profession. The State had done very great things for the profession in the past and he thought that one of the strongest things it could now do for medicine would be to establish a thoroughly serviceable medical library which should be gotten together with care and circumspectness. He said that he was looking forward to the establishment in the near future of a library development on the Capitol Hill which should be a credit to the great State of New York and second to none in the country.

Dr. HUN then moved that the thanks of the Society be tendered to Mr. Johnston and Dr. Draper. The motion was seconded by Dr. Theisen and carried.

Upon motion of Dr. SHAW the Society adjourned.

After adjournment the rooms of the Medical Library were inspected under the supervision of Miss BUNNELL, the Medical Librarian.

JAMES F. ROONEY, *Secretary.*

JAMES P. BOYD, *President.*

IN MEMORY OF NOAH L. EASTMAN, M. D.—A special meeting of the Medical Society of the County of Albany, in memory of DR. NOAH L. EASTMAN, was held in Alumni Hall, Tuesday evening, October 25, 1904, at five o'clock, the President, DR. JAMES P. BOYD, in the chair. Remarks commemorating the life and work of DR. EASTMAN were made by DRS. STILLMAN, LOCHNER, MOSHER and TRAVER, and the following resolutions, proposed by DR. TRAVER were unanimously adopted:

WHEREAS, God in His great wisdom hath taken from among us our dearly beloved brother, DR. N. L. EASTMAN, and we must now strike forever from the roll of active membership in this society, the name of an old and honored associate, therefore be it

Resolved, That in the death of DR. EASTMAN, we recognize the wisdom of a higher power and bow in humble submission to the will of Almighty God, who doeth all things well.

Resolved, That this Society is deeply sensible of the loss it has sustained by his death, and that his memory will be perpetuated by reason of his many kindly qualities, his loyalty to his friends and his love for the profession he had chosen.

Resolved, That this Society extend to his bereaved wife and immediate family its sincerest sympathy in this, their hour of affliction.

Resolved, That a copy of these resolutions be sent to the family of the deceased, and that the same be spread on the minutes of this Society.

JAMES F. ROONEY, *Secretary.*

JAMES P. BOYD, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

Albany Medical College Alumni Association of Central New York.—The annual meeting of this association was held at "The Vanderbilt," in Syracuse, on September 28, 1904. Forty-one guests, including ladies, were seated at the banquet table, and the following toast-list was arranged, with Dr. Ely Van De Warker ('63), of Syracuse as toastmaster: "Professional Unity" Dr. I. M. Slingerland ('83), Fayetteville; "Surgery, Its Place in the World's History," Dr. Thomas P. Scully ('85), Rome; "The Country Physician," Dr. LeRoy F. Hollis ('93), Lacona; "The Physician in Literature," Dr. Herbert O. Brust ('97), Syracuse; "Modern Medical Education," Professor Samuel B. Ward (Honorary); "The Ideal Wife," Dr. Charles Bernstein ('94), Rome; "The Whole Man," Rev. W. Courtland Robinson, Syracuse. The following named officers were elected for the ensuing year; President, Dr. Charles Bernstein ('94), Rome; First Vice-President, Dr. Charles H. Bennett ('97), Auburn; Second Vice-President, Dr. Irving S. Edsall ('85), Middleville; Third Vice-President, Dr. Matthew R. Carson ('57), Canandaigua; Fourth Vice-President, Dr. Erwin J. Cusack ('94), Fulton; Fifth Vice-President, Dr. George W. E. Goodell ('94), Bridgeport; Sixth Vice-President, Dr. Abram G. Brown ('61), Utica; Secretary, Dr. Frederic H. Brewer ('78), Utica; Treasurer, Dr. Durand R. Kinlock ('95), Utica. The next meeting is to be held in Utica on the last Wednesday in September, 1905.

Experiences in Siam.—Dr. William J. Swart (A. M. C., '98), spoke at the First Presbyterian Church on October 22nd, on his missionary work in Siam. On receiving his degree he became a medical missionary of the Presbyterian Board and was sent to Siam. Dr. Swart sailed in 1898 for Siam via San Francisco. He visited the Sandwich Islands en route, made a short examination into conditions in Japan, and had time to see a little of China before he hastened off to his station in Siam. He was accompanied by his wife, who assisted in the missionary work. Dr. Swart has labored in and about Nakawn See-Tamarat, where his frail, meagre hospital is situated, for six years. Three years ago his wife died, and now it is his great hope to be able to build, as a monument to her, a fine, commodious hospital, with up-to-date appliances, that he may be the better able to minister to the suffering inhabitants. During his six years' practice, Dr. Swart has treated over 6,000 patients, with the aid of two native assistants. He stated that the greater part of the illness among natives of Siam is inherited, and the variety of diseases is very great, many phases being unknown in temperate climates. The speaker said his patients came to him from miles around to be healed, and especially was he famous in the land through his ability in removing cataracts. Dr. Swart has been here since June, and he expects to return to his foreign work next June, with enough money to ensure the erection of the new hospital. His talk on the medical work he has done in Siam was especially interesting to the large number of local physicians who were present. Dr. Swart has estimated that a hospital for the work in Siam would cost $6,000. The Siamese, with the help of a few American friends living in Siam, have already contributed more than $4,000 of this sum. The King of Siam gave $1,100, and a wealthy rice miller and timber merchant gave $750, the cost of erecting one ward building, which will be named the Kim Seng Lee ward, in honor of his firm. The hospital is to be built of brick, with tile roofing and teak-wood doors, windows and floors. The foundations for the main building and four of the six proposed wards are already completed.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR; STATISTICS FOR SEPTEMBER, 1904.—Number of new cases, 75. *Classification of cases:* Dispensary cases receiving home care, 0; district cases reported by health physicians, 5; charity cases reported by other physicians, 36; patients of limited means, 34; old cases still under treatment, 31; total number of patients under nursing care, 106. *Classification of diseases* (New cases)—medical, 24; surgical, 4; gynæcological, 4; obstetrical, 20 mothers and 20 infants, 40; dental, 2; skin, 1; transferred to hospitals, 2; died, 11.

Visits of Guild nurses (all departments): Number of visits with nursing treatment, 804; Number of visits for supervision of convalescents, 179; total for month, 983. Four graduate nurses on duty; 2 assistant nurses on duty. Cases were reported to the Guild by two Health physicians and by twenty-five other physicians. One dentist in attendance.

On Wednesday and Thursday, October 26th and 27th, the new home of the Guild, 390 Madison Avenue, was opened for inspection, and the citizens of Albany inspected the institution and its work in general, and the diet kitchen was in operation, from which bouillon, chocolate, etc., were served.

ALBANY HOSPITAL AID SOCIETY.—A course of entertainments has been arranged for the benefit of the Albany Hospital under the auspices of the Coeymans Branch of the Aid Society. These will be carried on during the coming winter and the following provisional program has been announced: Play, "The Portrait of Patty Ridgely;" concert, Professor Frank M. Vanderpoel, director; lecture, "Lincoln," by Hon. Danforth E. Ainsworth; minstrels, by home talent; recitation, Hon. John A. Howe, Jr. The following is the list of officers of the Coeymans Branch of the Albany Hospital Aid Society: President, Mrs. Anthony Houghtaling Blaisdell; Vice-President, Mrs. E. Sterling Potter; Secretary, Mrs. Charles W. Burrowes; Treasurer, Miss Eliza Hull; Entertainment Committee, Mrs. C. F. Suderly, Jr., Chairman; Mrs. Andrew J. Wolfe, Mrs. Wm. H. Seabridge, Mrs. P. J. O'Dea, 1st., and the officers of the society.

THE GERMAN HOSPITAL WARD.—On the evening of October 22nd, in Proctor's Theatre, a concert was given for the German ward of the Albany City Hospital under the auspices of the German Hospital

Association, assisted by the Liszt Choral Club, Prof. A. Schaeffer, director; Albany Mænner quartet, Prof. A. Schaeffer, director; Cæcelia Singing Society, Prof. H. Haverkamp, director; Liederkranz O. S. of F.; Mrs. Emil C. Rosche, alto; Mrs. Zimmerman Martin, soprano; Master W. J. Fehrer, soprano; Prof. Joseph A. Schaeffer and Prof. F. W. Kerner, accompanists, and an orchestra of twenty pieces, furnished by Mr. Joseph Klein. Mrs. Zimmerman-Martin pleased the audience with her singing of "Gondoliera," and Mrs. E. C. Rosche rendered "Angels Bright and Angels Fair," with pleasing effect. Master William J. Fehrer sang "Oh, Dry Those Tears," a soprano solo, and received merited applause.

Ellis Hospital, Schenectady.—Bids on the construction of this institution will be received until November 17th. It is hoped by the board of directors that all the preliminary work of letting the contracts will quickly be completed and everything will be in readiness for beginning work on the new structure next spring as soon as the ground is sufficiently soft to allow the excavation for the cellar and the laying of the foundation. It is thought that it will take about a year to complete the work after it has been started. One of the features in the new hospital will be the development of the training school for nurses, a thing which has in a measure been handicapped by the cramped quarters at the present building. All of the latest equipments for this branch of the work will be supplied and lectures will be given more frequently in some room that will be supplied for this purpose.

Typhoid Fever at Summer Resorts.—The State Department of Health has issued a bulletin calling attention to the insanitary condition prevailing at summer hotels and ascribing the epidemic of typhoid fever at Albany to that cause. The bulletin states: "This epidemic and many others investigated in the past have shown that hundreds of persons are infected every summer with typhoid fever at country resorts, and return to the city before the disease manifests itself, thus making the number of cases reported to the city boards of health unusually large in the early fall. The same circumstances doubtless surround the increase of typhoid fever in cities in the spring when many persons return from the resorts of the South." The department suggests that the proprietors of hotels will doubtless be glad to co-operate with the authorities in making their surroundings more healthful.

A Commission to Study Pneumonia.—In response to the request of Dr. Darlington, Health Commissioner, the Board of Estimate of New York has appropriated $10,000 to meet the expenses of a commission to investigate the causes and prevention of pneumonia. The commission will consist of Drs. Frank Billings, of Chicago; John H. Musser, of Philadelphia; Theobald Smith, of Boston; William Osler and William H. Welch, of Baltimore; and Edward G. Janeway, L. Emmet Holt, and T. Mitchell Prudden, of New York city.

THE JOHNS HOPKINS HOSPITAL.—The new surgical building at the Johns Hopkins Hospital was dedicated October 5, by addresses of several prominent American and foreign physicians. A bronze tablet erected to the memory of Dr. Jesse W. Lazear, who lost his life from yellow fever in Cuba while investigating that disease there in 1900, was dedicated in one of the amphitheatres. The building cost about $150,000, is of brick, and four stories high. Sanitation and ventilation are important features. All the floors are of tiles, every room and hallway used by patients being also wainscoted with glazed white tiles. The stairways are of marble and iron, and there are toilet rooms and baths on each floor. A surgical amphitheater, forty feet high, also has extensive tiling, marble work, and a hall with wide lights composed entirely of wired glass. There are a number of consultation rooms. On the first floor will be emergency rooms for accident cases, minor operation rooms, and the orthopedic department. Two large vaults of brick and cement are provided for surgical records.

NEW YORK SKIN AND CANCER HOSPITAL.—The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a sixth series of clinical lectures on diseases of the skin, in the Out-Patient Hall of the hospital, on the corner of Second avenue and Nineteenth street, on Wednesday afternoons, commencing November 2, 1904, at 4:15 o'clock. The course will be free to the medical profession.

NEW YORK STATE MEDICAL ASSOCIATION.—At the annual meeting held in New York on October 18th, the members of the Medical Society of the State of New York were made the guests of the Association and invited to the privileges of the floor by President Dr. William H. Thornton.

THE AMERICAN JOURNAL OF UROLOGY.—A new journal under this title is announced by The Grafton Press, New York, as the official organ of the American Urological Association.

HONOR TO DR. IRA REMSEN.—The Society of Chemical Industry has awarded its medal to Dr. Ira Remsen, President of Johns Hopkins University. This medal was founded in 1896, and is awarded every two years for conspicuous service rendered to applied chemistry, by research, discovery, invention, or improvements in process. Probably the most noteworthy discovery made by Dr. Remsen was saccharin, discovered in his laboratory in 1879. His "Chemistry" has been translated into German, French, Italian and Japanese, and is used in colleges in all those countries, and in nearly every college and university in America, and his "Organic Chemistry" is also well known.

THE FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.—The ANNALS has received the second and third numbers of the *Journal of the Fifteenth International Congress of Medicine*. The Congress is to meet in Lisbon in April, 1906. The *Journal* contains the report of the meetings and the most important resolutions of the Central Committees. In the two numbers is given the list of the subjects of official reports with the names of the authors. In every section, there is also a list of recommended themes for free communications. The *Journal* publishes also the list of the national committees of the several countries as far as these committees have been announced. The official language of the *Journal* is French.

HISTORICAL EXHIBITION IN LONDON.—A circular has been received from Mr. Henry Wellcome, of the firm of Burroughs Wellcome and Company, announcing an exhibition in connection with the history of medicine, chemistry, pharmacy and the allied sciences. Loans of historical articles are desired, even though the items be small, as references to ancient treatment in manuscripts or printed works.

RESIGNATION OF PROFESSOR KOCH.—Professor Koch's resignation in the University of Berlin has been accepted, and Gaffky, Professor of Hygiene of the University of Giessen, has been nominated to fill his place.

DEATHS OF EMINENT FOREIGNERS.—The sad intelligence is given of the deaths of two eminent European physicians whose names and work are well known in America:

DR. KARL WEIGERT, professor of pathologic anatomy since 1884, and director of the Pathologic Institute at Frankfurt a M., died there from a stroke of apoplexy, August 5, aged 59. His research on the anatomy of smallpox and on the relations between the anilin dyes and the animal tissues laid the foundations, thirty years ago, for much of our present knowledge of pathologic anatomy and bacteriology. His neuroglia staining is considered his greatest triumph, opening the way for study of the structure of the brain from new standpoints. Among his other fruitful works are those on tuberculosis of the veins, staining of bacteria, proliferation of cells under external stimuli, "coagulation necrosis," encapsulation of tuberculous foci, etc. He has trained a number of pupils who do him honor, among them Prof. Paul Ehrlich.

DR. NIELS R. FINSEN, the pioneer in scientific phototherapy, died September 24, in Copenhagen, aged 43. He was a native of the Faroe Islands. He began his work while a student in the Copenhagen University, from which he was graduated in 1890. Three years later he published an article on "The Influence of Light on the Skin," which aroused general attention because of his assertion that small pox could be cured by the red-light treatment. This was but one application of the Finsen theory that light rays contained healing powers, and to develop the positive element of his theory he began experimenting with concentrated artificial light rays. As a result of his experiments, he effected a cure for lupus vulgaris. This cure directed great attention to the young investigator, and in 1896 the Municipal Hospital of Copenhagen allowed Professor Finsen several small buildings on its grounds in which to carry on his experiments. The Danish government then became interested in the support of the institution, and this support enabled the institute to be removed to Rosenvaenget, a suburb of Copenhagen, where under the direction of Professor Finsen, with a staff of scientists of national repute, expert electricians, and trained nurses, many cures of cases previously deemed incurable were made. In December, 1903, Professor Finsen was awarded the Nobel prize. For several years he had suffered from dropsy resulting from heart disease, but so intense was his devotion to his work that he hardly spared time from his studies for sleeping and eating, much less to recuperate his health. His death is attributable to an aggravation of the diseases from which he had suffered during his entire adult life by reason of his persistent overwork.

—*Journal of the American Medical Association.*

PERSONAL.—Dr. A. E. MACDONALD has retired from the Superintendency of the Manhattan State Hospital, East, Ward's Island, and may be addressed at Columbia Court, 431 Riverside avenue, corner of One Hundred and Fifteenth street, New York city.

—DR. HARRY W. CAREY has removed from 1824 Fifth avenue to 108 Fourth street, Troy, N. Y.

—DR. HENRY DICKINSON (A. M. C. '74) is at Chappaqua, Westchester county, N. Y.

—DR. FLAVIUS PACKER (A. M. C. '93) is on the staff of the River Crest Sanitarium, Astoria, Long Island, N. Y.

—DR. WILLIAM H. YOUNG (A. M. C. '99) is at Starkville, Herkimer county, N. Y.

—DR. DONALD BOYD (A. M. C. '03) is associated in practice with DR. JAMES P. BOYD at 152 Washington avenue, Albany, N. Y.

—DR. CHARLES W. CHAPIN (A. M. C. '04) is at Smithville Flats, Chenango county, N. Y.

MARRIED.—CRISSEY-BACON.—At the bride's home, 157 Lancaster street, Albany, N. Y., DR. GILBERT WORDEN CRISSEY (A. M. C. '99) and MISS SARAH C. BACON, were married on October 12, 1904. DR. and MRS. CRISSEY will reside on Park avenue, Mechanicville, N. Y.

DIED.—DR. TRUMAN E. PARKMAN of the Class of 1866, Albany Medical College, died at Rock City Falls, N. Y., October 24, 1904.

In Memoriam

CHARLES LAMONT PARKER, M. D.

Dr. C. L. Parker died at his home at Onondaga Hill, N. Y., May 23, 1904. He was born at Chenango Bridge, Broome county, N. Y., January 11, 1857. He taught school for several years. In 1885 he married Mary Lewis Smith, of Lisle, Broome county, N. Y.

He graduated from the Albany Medical College in 1892 and went directly to Onondaga Hill, where he practiced up to the time of his death and also acted as physician to the Onondaga County Alms House. He enjoyed a large acquaintance and had a large and very hard practice in the country districts, and he had and merited the respect and friendship of all who knew him. He was an active member of the Presbyterian Church, and superintendent of the Sunday school.

Dr. Parker is survived by a widow and two daughters, Florence, aged sixteen, and Edith, aged ten years.

He was ill about two months and his death was due to pernicious anaemia.

FREDERICK W. SMITH.

NOAH L. EASTMAN, M. D.

At an early hour on the morning of October 21, 1904, Dr. Noah L. Eastman, aged 46, died at his home, 427 Clinton Avenue, Albany, N. Y. Dr. Eastman had been for some time a sufferer from Bright's disease, which finally caused his death. He is survived by a wife and one daughter, a child of three years. Dr. Eastman was the son of the late Noah Eastman, of St. Johnsbury, Vt. In early manhood he came to Albany and entered the Albany Medical College, from which he took his degree in 1886. Since then he has been a practicing physician in Albany. He was a member of the Medical Society of the County of Albany.

Dr. Eastman was a quiet, unpretentious and faithful family practitioner. Although well endowed with this world's goods, he was punctilious and conscientious in his service among his poor patients, no less than with the well-to-do. He did not seek active association with his professional colleagues, but was invariably courteous and considerate. He leaves a pleasant impression in Albany, and memory of him will be cherished.

Book Reviews

Medical Diagnosis: Special Diagnosis of Internal Medicine: A Handbook for Physicians and Students. By Dr. WILHELM v. LEUBE, Professor of Medicine, and Physician-in-Chief to the Julius Hospital at Wurzburg. Authorized translation from the sixth German edition. Edited, with Annotations, by JULIUS L. SALINGER, M. D., Late Professor of Clinical Medicine in the Jefferson Medical College, and Physician to the Philadelphia Hospital. With five colored plates and seventy-four illustrations in the text. New York and London: D. Appleton and Company, 1904.

A translation of Dr. Leube's "Medical Diagnosis" will be gladly welcomed by English readers, whether they have been familiar with the original or not. The book belongs to one of the relatively small class in which is evidence of originality not only of work but of thought, and Leube's descriptions of symptoms show the minute attention and the close reasoning he has applied to every group of facts he describes. The first section of the book deals with diseases of the heart. In the physical signs of the chest the author is particularly strong and there is nothing better in the literature than these descriptions. Among the special facts, not matters of common knowledge, he mentions the *systolic pulsation* of the pulmonary artery in mitral insufficiency, which is distended by regurgitation of the blood, thus pushes the border of the lung aside and renders "visible and palpable the diastolic closure of the valve." The arterial sounds in aortic insufficiency are most clearly brought out, and the work of Duroziez upon murmurs in the crural artery, which is far from common in textbooks, is cited. Some help is given in the early diagnosis of central pneumonia by the suggestion of comparative auscultation of the voice at different parts of the thorax. The author has demonstrated beginning bronchophony at the point where later the charcteristic signs of infiltration have developed. He has little doubt of the tubercular character of apical catarrh: "This catarrh is *nearly always* the sign of the entrance of the bacilli into the organism, and with the catarrh slight dullness in the supraclavicular region can in the majority of cases be demonstrated." He admits exceptions, but believes in the rule. A chapter on the mediastinum is a valuable addition to the differential diagnosis of diseases of the thorax.

In the differentiation of acute nephritis stress is laid upon the fact that its course is almost invariably afebrile.

Attention is directed to the possible confusion with abscess of the liver of abscesses of the abdominal wall caused especially by tuberculosis of the ribs. The following method of determining the boundaries of peritoneal inflammation in perityphlitis is unique: the patient is asked to denote whether the individual blows of light percussion are painful or not, and this method, aimed at defining the tender area, if practiced several times daily, "is an excellent method of diagnosticating the progress of the inflammation and of reaching an indication for the performance of laparotomy." In the chapter on multiple neuritis due emphasis is given to Korsakoff's polyneuritic psychosis, which is "obviously the effect of certain intoxications and of infections," thus taking the broader conception of this syndrome, which is not to be limited to alcoholic conditions.

Jolly's electrical reaction is not regarded as exclusive to pseudo-paralytic myasthenia, and sometimes occurs in bulbar paralysis with an organic lesion. The author states that "we do not know the cause of myasthenia; probably it is due to an intoxication." In the symptomatology of cerebral haemorrhage emphasis is laid upon diminution of the superficial reflexes, which thus offer a marked contrast to the notable exaggeration of the tendon responses. This is especially characteristic of the cremasteric reflex, and the author believes that this "fact may sometimes be utilized, in unconscious patients, to determine for the time being whether and upon which side the hemiplegia is located." The symptoms of traumatic neurosis are discussed with discrimination, but the author regards the term as superfluous, and would diagnosticate "a psychosis, hysteria, respectively [*sic*] neurasthenia, due to traumatism." As to the detection of simulation, the author unfortunately has no new test to apply or special advice to give.

In this enumeration of points of special value in the book, little is revealed of its strongly individual character. It may be described as exceptionally full and complete. A few defects or omissions have been noted. In the otherwise eloquent description of the diseases of the chest no mention is made of the Stokes-Adams syndrome. The diagnosis of diseases of the ileo-caecal region does not include the possibility of carcinoma of the appendix, upon which some literature has recently been published. In connection with movable kidney the so-called Dietl's crises are not considered. In the description of the paralysis of cerebral haemorrhage no comment is made upon the respiratory movements, though the degrees of expansion on voluntary or involuntary inspiration have been shown by Hughlings Jackson to differ. The term *idiocy* is applied to the final stage of paretic dementia. This may conform with German usage, but in English idiocy technically signifies congenial defect. The description of chorea minor lacks in fullness, particularly in accrediting to this disease muscular weakness. It is safe to say that weakness of the affected muscles is no less pathognomonic than the incoordinate movements or the mental irritability. This is occasionally excessive and the recent publication of cases of "chorea paralytica" is well within the mark, and descriptive of a phase of this disease.

The translation is excellent. The tranlator betrays only one generic weakness in the use of the word "respectively," when he means "or." He fails to adopt the English terminology when writing of the musculo-spiral and circumflex nerves, which are designated, respectively, radial and axillary. In a small-type paragraph on paralysis of the axillary nerve (page 486) the German idiom is preserved so completely and the English expression is so awkward as to give rise to the suspicion that the translation of this paragraph was delegated to another. On the same page the incomprehensible statement is made that the "rhomboidei, which are supplied by the dorsalis scapulæ (simultaneously with the thoracic posterior) pierces the scalenus medius." Another curious error hardly permissible in a text-book, is the misplacement of the decimal in the urinary specific gravities. Thus we have 10.20, 10.30, etc., instead of 1.020, 1.030.

But these are minor points. The translation is smooth, clear and remarkably free from German idioms. The text-book should have wide acceptance. It is to be differentiated from all books in which a distinct personality is not revealed.

The Clinical Study of Blood Pressure. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts Relating to the Blood Pressure in Health and Disease. By THEODORE C. JANEWAY, M. D., Lecturer on Medical Diagnosis, University and Bellevue Hospital Medical College, and Visiting Physician to City Hospital, New York City. Octavo Volume of Three Hundred Pages and Seventy-five Charts and Illustrations. D. Appleton & Company, 1904.

This is the first scientific, comprehensive and practical treatise on blood pressure in man that has appeared in the English language.

No conscientious clinician of to-day can deny that wrong deductions are frequently made even by trained observers in determining the tension of the pulse by palpation. Accuracy of observation is necessary for a correct diagnosis and the modern sphygmomanometer now occupies a fixed place in the armamentarium of the progressive physician.

There are many who will claim that these instruments are but an unnecessary refinement and that the degree of tension can be determined by the sense of touch. Fever was recognized before the days of the clinical thermometer, and Dr. Janeway remarks that no physician would indorse the sentiments of the old colored mammy who said: "What you want wif dese new-fangle fermometers, honey? I put de babies in de baf, and if de water too cole it turns 'em blue, if its too hot it turns 'em red."

Thirty-nine pages are devoted to the physiological features of arterial tension, sixty-three to the technical side and one hundred and ninety-five to its clinical significance. Each chapter is preceded by a full synopsis of all the topics, conveniently arranged and printed in heavy type. This makes it possible at a glance to obtain some idea of the subjects treated. The book is thus made more useful for reference and is also made more readable.

The most accurate and serviceable instruments for clinical use are those constructed on the general plan of the Riva Rocci sphygmomanometer and the Gärtner tonometer. The adherents of these two systems defend their choice with rancor and great jealousy. The author has devised an instrument on the Riva Rocci principle and is decidedly partial to this type. In this system the brachial artery is compressed above the elbow and the disappearance of the arterial flow in the radial artery noted. The Gärtner principle lies in the removal of the blood from the terminal phalanx with a rubber band and then compressing the digital arteries at the lower phalanges and using the flushing of the finger as an index.

This book had probably gone to press when the improved tonometer of Gärtner was described in the *Münchner medicinische Wochenschrift* in March, 1904. This new instrument overcomes many of the objections heretofore raised and is in the mind of the reviewer the simplest, most accurate and most practical sphygmomanometer now on the market. This is shown by the fact that it is in use at most of the large medical clinics of Germany and Austria.

The great value of this subject to the practitioner lies in the clinical application and results. Dr. Janeway devotes two thirds of his book to the consideration of these questions. The titles of the chapters in this section are: blood pressure in the normal man; in disease; in internal diseases; in nervous and mental diseases; in surgical conditions; in obstetrical conditions.

The charts and graphic blood pressure records of the author are excellent and should be adopted in every general hospital.

Dr. Janeway has rendered a distinct service to the medical profession in America in presenting the subject of blood pressure in such an attractive and scientific manner and in making available the large foreign journal literature on this subject. H. L. K. S.

Saunders' Question Compends. Essentials of Chemistry, Organic and Inorganic. Containing also questions on Medical Physics, etc. By LAWRENCE WOLFF, M. D., formerly Demonstrator of Chemistry at the Jefferson Medical College, Philadlphia. Sixth edition, thoroughly Revised. By A. FERREE WITMER, Ph. G. 12mo., 225 pages. Philadelphia: W. B. Saunders & Company, 1904. Cloth, $1.00 net.

The fact that a sixth edition of this little work has been called for indicates its popularity. It is conveniently arranged and the subjects have been carefully selected, but books of this class are open to the objection that they may be used by superficial students as substitutes for the more comprehensive works, a study of which is essential on the part of those who desire to obtain, as all real students should, a broad and useful knowledge of such a subject as chemistry, even when regarded as part of the medical curriculum merely. But for legitimate purposes of review by the student, and for convenient reference by the physician when exhaustive knowledge is not required, such compends may prove exceedingly useful, and this one may be recommended as supplying needs of this kind in a very satisfactory manner. W. G. T.

The Practice of Obstetrics. Designed for the use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College; Visiting Obstetrician to the Emergency Hospital of Bellevue Hospital, New York city; Consulting Obstetrician to the New York Maternity Hospital. Second Edition, Revised, with 1,264 Illustrations, including five colored plates and 38 Figures Printed in Colors. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street, 1904.

The rapid exhaustion of the first edition of this book is sufficient evidence of its value and popularity with the student and practitioner and warrants the praise given it in the review in the February number of the Annals. The gerenal plan of classification,—a most convenient one for the student,—is the same as in the first edition but there is some rearrangement of subject matter and several additions have been made. Nausea and vomiting, icterus, convulsions and coma, and eclampsia have been transferred to the section on "The Toxæmia of Pregnancy." The most important change is the rewriting of the section on "Fever in the Puerperium" as the author now believes that Stolz and other investigators have established the fact that pathogenic germs exist in the healthy vagina. This view reopens the question of the value of the antepartum douche which Dr. Edgar states is not yet settled though he believes that some patients become seriously infected by these bacilli from the vagina.

This work is an excellent text-book for students and a practical guide for physicians and each department is so ably discussed that it is impossible to pick out portions for special commendation. The typography is of a high order and the minor errors of the first edition have been corrected. Forty-eight illustrations, three of them colored plates, have been added in this edition while all the colored plates and many of the other illustrations have been redrawn. The number of the illustrations,—1264,—gives some idea of the freedom with which they are used, but their value to the student can only be appreciated by an examination of the book. R. G. C.

Regional Minor Surgery. By George Gray Van Schaick, Consulting Surgeon to French Hospital, N. Y. Second edition, enlarged and revised, 228 pages, bound in cloth, profusely illustrated. Price $1.50: International Journal of Surgery Co., N. Y.

This book takes up minor surgical affection in a thorough manner. The drawings are numerous and clear; the print is good; the book is gotten up in a neat manner and contains much useful information. A. H. TRAVER.

A Hand-Book of Surgery. For Students and Practitioners. By Frederic R. Griffith, M. D., Surgeon to the Bellevue Dispensary, New York City; Assistant Surgeon at the New York Polyclinic School and Hospital. 12mo volume of 579 pages, containing 417 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904 Flexible leather, $2.00 net.

This book is almost a library in itself, as it includes all the more important surgical subjects as well as some very useful chapters not generally included in text-books on surgery. Chapter XI, on Medico-Legal Examinations, is very instructive and interesting. Medical Jurisprudence is briefly but quite thoroughly covered and this chapter will be found particularly valuable to recent graduates. The same may be said of the chapter on Life Insurance Examinations, as the majority of practitioners need to prepare themselves to render the insurance company their best services.

The mechanical work of the book is of the usual high character established by the publishers. A. H. TRAVER.

Transactions of the Medical Society of the State of New York for the Year 1904. Published by the Society, 1904.

The minutes of the ninety-eighth annual meeting of the State Society, are of unique interest as they contain the final report of the committee of conference, the constitution agreed upon by the joint committee of the society and the association and the ratification of the report by the unanimous vote of the society.

The subject of the anniversary address by the President, Algernon T. Brislow, M. D., is "The Present Status of the Medical Expert," and the address of the President Arthur Twining Hadley, LL. D., of Yale University, is entitled "The Conflicting Claims of General Education and Professional Education." The volume contains forty-nine papers which were read at the annual meeting and at the meeting in New York in October. The symposium is well represented by nineteen papers, divided among five subjects; diabetes, nephritis, abdominal pain, typhoid fever and the Roentgen ray.

The usual lists of officers and members of the State Society and of the various county societies occupy the last seventy-six pages of the book.

R. G. C.

Current Medical Literature

SURGERY

Edited by A. Vander Veer, M. D.

Experiences in Surgery of the Stomach. (Erfarungen in der Magenchirurgie.)

Fedor Krause. *Berliner klinische Wochenschrift, No. 47, November, 1903.*

During the past two and one-half years the writer has performed seventy-nine operations upon the stomach and the study of these cases forms the basis of this report. He regards benign affections of the stomach as of most importance, and ulcer of the stomach occupies first place in this group.

Ulcer of the stomach may require operation under any one of six conditions: first, perforation; second, hemorrhage; third, persistent pain and vomiting; fourth, stenosis of the pylorus; fifth, perigastric adhesions; and, sixth, hour-glass contractions of the stomach.

In cases of hemorrhage from the stomach the usual method is to excise the ulcer, and in addition to this a gastro-enterostomy may or may not be done. In cases of gastric ulcer associated with persistent pain, vomiting and occasional hemorrhage, he advises in every instance an anterior gastro-enterostomy, together with an entero-anastomosis. In all his operations upon the stomach he uses suture and never employs the Murphy button. In the great majority of instances this method of treatment cures the ulcer and the patients remain perfectly well subsequently.

In certain cases where there is extreme exhaustion and where the patient has been for some time unable to take much nourishment by mouth (in which cases there is great need of the immediate introduction of nourishment into the alimentary tract) he performs a jejunostomy by the introduction of a small catheter into the jejunum just below the entero-anastomosis after the method of Witzel. The patient is fed through this catheter until the stomach symptoms have disappeared, after which it is removed and the fistula rapidly closes. In this way he believes he has been able to save certain cases which otherwise would have died from exhaustion.

In mild cases of pyloric stenosis he makes use of the pyloroplasty, but in the great majority of instances prefers gastro-enterostomy.

Considerable attention is devoted to the subject of the surgical treatment of carcinoma of the stomach. Whenever it is possible he believes that the radical extirpation of the tumor should be attempted, but the exact nature of the operation to be performed can be determined only after the abdomen is opened. He believes that in cases in which there is much enlargement of the regionary glands, together with marked general weakness, a radical operation is scarcely to be thought of.

Of the seventy-nine stomach operations performed in the past two and one-half years, eight were gastrostomies; forty-five were gastro-enterostomies; fourteen were re-sections of the stomach; seven were jejunostomies; two were excisions of ulcer of the stomach; and three were pyloroplasties. In sixteen instances gastro-enterostomy was performed for benign diseases of the stomach without mortality. In twenty-nine cases gastro-enterostomy was performed for carcinoma of the stomach with forty-eight per cent. mortality. This he attributes to the fact that the condition of these patients was very much more serious and their resistance was very much reduced. In fourteen cases in which re-section of the stomach was performed there was a mortality of twenty-eight and six-tenths per cent. This lowered mortality is due to the fact that the writer attempted the radical operation only upon favorable cases.

He prefers general anesthesia to local and believes that there is no contrary indications in these cases to its use. He regards rapidity of operation, with avoidance of loss of blood and chilling of the body, together with the strictest asepsis, as the most important factors in the conduct of the operation.

Operations on the Common Bile Duct for Stenosis Resulting from Cicatricial Contraction or Carcinoma, Together with Some Remarks upon the Normal Secretion of the Pancreas. (Ueber Operationen am Choledochus wegen Verengerung durch Narben oder Carcinom, nebst Bemerkungen über normales Pankreassekret.)

W. Korte. *Archiv für klinische Chirurgie, Band 71, Heft 4.*

There are two great causes of occlusion of the common bile duct,—that produced by stone, and that produced by tumor. The symptoms of each of these conditions are fairly distinctive and in many instances allow of a differential diagnosis.

Occlusion resulting from a stone is usually associated with colic before the appearance of icterus; fever, often with chills; periodical variations in the amount of bile in the feces; and the absence of a large tumor of the gall bladder. The gall bladder is almost always small and contracted. This contraction appears to be the result of the inflammation and the irritation produced by the stone. Any obstruction produced by tumor of the gall bladder is usually large, easily palpated, typical colic is absent, the acholic fœces develop gradually but persist, and fever is usually absent.

In some instances obstruction of the common duct results from compression produced either by a carcinoma or chronic inflammation of some of the structures around the duct, such as the pancreas, the glands in the hilum of the liver, and tumors of the duodenum. Carcinoma of the pancreas is probably the most frequent cause of compression of the common duct.

Operations upon cases of the last character are usually unsatisfactory. The difficulty, however, of differentiating carcinoma of the head of the pancreas from chronic pancreatitis is well known, and the very satisfactory results which have followed cholecyst-enterostomy in the latter class of cases makes it advisable to give every case of compression of the bile duct the benefit of an exploratory operation with an attempt to establish drainage of bile into the intestine.

Primary carcinoma of the duct is a rare cause of obstruction and there are not more than three or four cases on record in which an attempt has been made to excise the carcinoma and suture the duct to the duodenum.

A still rarer form of obstruction of the common duct is that produced by benign cicatricial contraction. The writer reports an extremely interesting case of this character upon which he operated and in which he introduced a catheter into the pancreatic duct and brought the end of the catheter out into the wound so that it was possible for him to collect the secretion from a normal pancreas, the study of which was extremely interesting. As much as from 700 to 1000 cubic centimetres of pancreatic secretion were collected in twenty-four hours. During the fasting condition there was but comparatively little pancreatic secretion, but it increased gradually during the period of digestion. Injection of hydrochloric acid doubled the amount secreted, while the injection of fat did not affect it. Of particular interest was the fact that the secretion contained a fat-splitting and starch-splitting ferment, but on the other hand there was contained in the secretion no ferment which possessed the power alone of digesting proteid. The digestion of the proteid occurred only when some intestinal secretion was added. The conclusion was, therefore, that the pancreas secretion contains only a so-called pro-ferment of trypsin, which becomes active only when mingled with the intestinal secretion and only under this condition possesses the power of digesting proteids.

The writer discusses the different operations to be employed in overcoming obstruction of the common duct. In some instances the anastomosis of the gall bladder to the small intestine has been satisfactory, but in others an ascending affection of the bile passages has resulted. Resection of a portion of the common duct with subsequent suture, or the suture of one end to the intestine has been practiced a few times, successfully. but the technical difficulties are great.

In general, however, some attempt should be made to establish communication between the bile passages above the obstruction and the upper portion of the intestinal tract. Where this is impossible, of course, external drainage is the only operation possible.

DERMATOLOGY

Edited by Frederic C. Curtis, M. D., and Harry W. Carey, M. D.

Blastomycosis.

Buschke. *Archiv für Dematologie und Syphilis, vol. lxviii, part iii.*

The author in a comprehensive article reviews the entire subject of blastomycosis including his own researches. Fungi he divides into two forms, (*a*) domestic, (*b*) wild. The pathogenic forms so far belong to the latter class. Among animals, horses and cattle especially, blastomycosis is not infrequent and is widespread.

The so-called "Japanese Glanders," the pseudo-glanders of southern Italy and southern France and the African glanders of Russia are types of blastomycetic infection. In animals the lesions are confined mostly to the skin and mucous membranes of the respiratory tract; only occasionally is there a general infection. In man Buschke believes there are two distinct forms of blastomycosis. (*a*) saccharomycosis and (*b*) oidiumycosis.

The former is very rarely met with and was first described by the author (*Verhandl. des VI Deutschen dermatol. Kongress*). It is characterized by its chronicity and in most cases results fatally.

It begins nearly always in the skin and with few exceptions forms metastases to the internal organs, by way of the lymphatics.

The lesions are acneiform and become later deep ulcers while tumor-like formations and ulcers develop in the neighboring lymphatics. Microscopically there is great inflammatory infiltration with proliferation of the fixed connective tissue cells. Many foreign body giant cells are present, often containing parasites. The epithelium shows only a slight grade of proliferation.

The second type Buschke has named oidiummycosis because he is not convinced as yet whether the parasite belongs to the true yeasts or is a form of hypomycetes. This type includes practically all of the American cases; the first one was reported by Gilchrist and while of frequent occurrence in this country is seldom met with in Germany.

The lesions are characterized by a diffuse infiltration of the skin with papillary outgrowths between which are small abscesses. The internal organs are rarely affected but this occasionally occurs with the formation of tubercle like masses and leads to great destruction of tissue.

Histologically the lesions differ from those of the first type in the great proliferation of the stratum mucosum of the epithelium which extends downward in long columns. The parasites are very few in number which is in contrast to the first type where they are very numerous.

The portal of entry, is, with very few exceptions, the skin. The author, however, succeeded in producing blastomycetic infections from the nose, mouth, conjunctivae and intestine (once).

In animal inoculation the infection is of two forms; a septicaemia with very little inflammatory reaction and a local blastomycosis. Buschke was not successful in producing an immunity in animals. The destruction of the yeast in the organism is the result of phagocytosis and not due to antitoxic principles of the blood serum although agglutination of the blastomyces has been observed in some cases. To other diseases such as syphilis, varicella, tonsillar hypertrophy and molluscum contagiosum the blastomyces has no etiological relationship.

Light Therapy. (*Lichttherapie nach Professor v. Tappeiner.*)

JESIONEK. *Münchener medicinsche Wochenschrift, No. 19, 10 May, 1904.*

The method of treating certain forms of skin diseases, especially carcinomata, by photodynamic substances is described in this article.

The basis of this form of therapy is the work done by Prof. Tappeiner, who found that fluorescent substances had a marked and intense effect on protozoa, enzymes, toxines and certain cell forms of the higher organisms.

Among the numerous fluorescent substances, solutions of eosin tetra bromin fluorescine were chosen and the diseased areas on the skin were painted and then exposed to direct sunlight, day light or electric light as the case might be. The reaction is based on the intensity of the light and in using the arc light its intensity was increased by plano-convex lenses similar to those used by Finsen. To remove the heat the lenses are filled with a mixture of $CuSO_4$ and picric acid which absorbs the heat rays.

Solutions of eosin varying in strength from 0.01-5.0 per cent. were used. Observation has shown that the weaker solutions (0.01-0.1 per cent.) are more efficient than the stronger solutions which cause crust formation and the crusts saturated with eosin hinder the penetration of the light. It is of importance not to allow the eosin solution which is painted on the lesion to dry but to keep it continually moist with water or normal salt solution. Only a trace of eosin color is necessary to bring about the desired result. In epitheliomata which are not suitable to paint the eosin is injected about the infiltrated periphery so as not to cause a crust to form. During the night the lesions are covered with suitable salves and protected by a bandage. The histological changes occurring in the skin are not mentioned.

Metastatic Abscess of Gonococcal Origin. (Sur un Cas d' Abcès Métastatique d'Origine Gonococcique.)

J. Kerassotis. *Annales des Maladies Organes Génito-Urinaires, 1 April, 1904.*

A dentist under treatment for blenorrhea of gonococcal origin complained of severe pain in the right mastoid region. The whole mastoid became swollen and red, later fluctuating. The abscess was opened and drained. The patient gave a history of several former urethral infections and each time suffered from pain in the right mastoid. When the urethral discharge abated the pain in the mastoid did also.

An examination of the pus from both sources showed the presence of an intra-cellular diplococcus staining with thionin and decolorizing by Gram's method. The diplococcus in each case was morphologically alike and resembled in every respect the gonococcus. This and the repeated coincidence of a blenorrhea and a mastoiditis make it highly probable that the abscess was metastatic from the urethra.

Fetron salve. (Uber Fetronsalbe.)

Edmund Saalfeld. *Therapeutische Monatshefte, April, 1904.*

Mention is here made of a new base for ointments consisting of vaseline ninety-seven per cent. and stearic acid anilid three per cent. It has a distinct advantage over vaseline or lanolin in that its melting point is higher (sixty-eight degrees centigrade) and therefore remains longer on the skin. It is non-irritating and has the property of absorbing fluid without losing its consistency hence is productive of very good results in weeping eczema. It lends itself well to combinations with drugs used in the treatment of skin diseases.

The Treatment of Psoriasis by the General Practitioner. (Zur Behandlung der Psoriasis durch den praktischen Arzt.)

Dreuw. *Münchener medicinische Wochenschrift No. 20, 17 May, 1904.*

The treatment of psoriasis with the following salve has been attended with excellent results in 300 cases in Lassar's clinic.

℞ Acid Salicyl	10.0
Chrysarobin	
bl. Rusci, āā	20.0
Sapon. Viridis	
Vaselini, āā	25.0

There is a chemical action between the green soap and the chrysarobin forming an alkali of chrysophanic acid. Its action is keratolytic, reducing and strongly bacteriacidal and is said to be limited to the affected areas of the skin.

The method of application is as follows:

With a brush apply the salve to the lesions of psoriasis morning and evening for four to six days. Cover with zinc or rice powder. A warm bath daily followed by inunctions of vaseline one to three days. This completes a "cycle" which is to be repeated several times. (It is presumed that arsenic is given internally at the same time).

CLINICAL MICROSCOPY

Edited by Arthur T. Laird, M. D.

The Prognostic Value of Tubercle Bacilli in the Sputum.

LAWRASON BROWN. *Journal of the American Medical Association, February 21, 1903.*

In this paper the results of observations made at the Adirondack Cottage Sanitarium during the last two years have been made use of to determine the possible prognostic value of the qualitative and quantative changes in the tubercle bacilli occurring in the sputum of phthisis. The sputum of each patient at the sanitarium is carefully examined every six weeks.

In tabulating the number of bacilli the author used Gaffky's scheme with a few modifications.

I. Only one to four bacilli in the whole preparation.
II. Only one bacillus on an average in many fields.
III. Only one bacillus on an average in each field.
IV. Two to three bacilli on an average in each field.
V. Four to six bacilli on an average in each field.
VI. Seven to twelve bacilli on an average in each field.
VII. Fairly numerous on an average in each field.
VIII. Numerous on an average in many fields.
IX. Very numerous on an average in many fields.
X. Enormous masses on an average in many fields.

The modifications consisted in replacing "fairly numerous" by "fifteen to twenty-five," "numerous" by "about fifty" and "very numerous" by "about 100 or more."

The number of tubercle bacilli seemed to vary with the severity of the case. Thus the "Gaffky" number was IV in cases apparently cured, VI. in the arrested, VII. in the unimproved and VIII. in the cases that failed.

The author in conclusion says:

1. That the examination of one specimen of sputum is of value, if tubercle bacilli are found, in proving the case to be one of tuberculosis of the respiratory tract.
2. If tubercle bacilli are not found one examination is of little value.
3. From one specimen little can be said in regard to prognosis.
4. If the number of bacilli steadily decrease in a series of examinations at intervals sufficiently long the patient may be improving but the constitutional symptoms and local signs give much more accurate information.
5. That if on repeated examinations large quantities of tubercle bacilli are found, the disease has in all probability advanced to cavitation.
6. That the morphology of the tubercle bacillus affords little or no ground for prognosis but the short bacilli are suggestive of a more active process.
7. Arrangement in clumps is more apt to be found in the severer cases.

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ON THE CLASSIFICATION OF INSANITY.

Read at a meeting of the Society of the Commission of Lunacy, Managers of Hospitals and Physicians of Hospitals of the State of Pennsylvania, May, 1904.

BY JOHN B. CHAPIN, M. D.,
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The writer is here in obedience to an invitation which came somewhat as a command from your president, who has also assigned a topic to occupy your attention for the moment. Whether what will be presented will prove to be profitable or not cannot be promised, but it is quite certain he could hardly have suggested a subject, in the range of what we might consider on an occasion such as that which has brought us together, about which there has been and will continue to be such a diversity of opinion as the classification of insanity. When we reflect for a moment upon the contentions and speculations that have characterized the attempts to classify the faculties of the human mind in its normal state, it can be assumed that its abnormal operations would present a problem quite as obscure, if not surrounded indeed with greater difficulties because the number of observers of disordered mental operations is comparatively small.

A classification of insanity, or a grouping together of classes or forms of insanity, a nomenclature, or a system of names to be applied to its different forms, is one of the first steps as essential to the advancement of its analytical study and inquiry, as in any other department of investigation. If there could be an agreement upon the terms to be used in public reports, papers, in public trials, that would be a vast gain.

Unfortunately this result has not yet been attained. This fact is itself but one of the acknowledged evidences of the complexity that surrounds the problem and furnishes an important reason for encouraging some general agreement as to the meaning of terms in common use. If such a desirable consensus could be reached, it would afford the professional and non-professional mind a means of comparing great aggregations of results collated on uniform plans, and also an intelligent comprehension of any interchange of views.

One of the acknowledged embarrassments is the absolute inability to comprehend that intangible essence which we call the mind or spirit. Who can tell what is actually taking place when we gaze upon a familiar face and note the mysterious movements that indicate that the soul is about to depart? Who can by a microscopic test or scientific speculation reveal the nature of that soul that has taken its flight, or of the changes that have occurred from life to death? The manifestations of the human mind which are called normal, and the vagaries that characterize its disordered functions, can be observed and classified. In the preparation of such a classification or nomenclature, no restriction is imposed upon anyone. Neither is there any appellate court of jurisdiction to which an appeal can be made for a final decision. It will only be accepted or rejected as it commends itself to our judgment, and is in accord with experience, subject always to revision without notice with the changing views and the new disclosures of science.

The attempts to form a nomenclature based upon the causes of insanity have not proved satisfactory owing to many diverse personal elements. Some hospital reports have assigned more than one hundred different so-called causes, the majority of them being but such episodes or incidents that are common to the every-day life of thousands of persons who do not become insane. In a recent Pennsylvania State Lunacy Committee's Report, which collated its statistical results from the several hospitals, appear seventy-six causes of insanity. For two years the writer has omitted to name any assigned causes, considering them of little value for scientific deductions, notwithstanding the popular interest they seem to possess. The different estimates placed upon heredity as a direct contributing cause of insanity is an illustration of psychological theorizing influenced by a personal element and preconceived views.

The attempt to found a basis for classifying insanity upon post mortem revelations is not likely to be generally accepted, bcause too little is yet actually known to make it sufficiently comprehensive. It can only be promoted with the hope of exciting a renewed scientific interest in our patients after death takes place. A nomenclature founded upon post mortem appearances would be accepted by a limited number, interested only in the results of what were the actual degenerating secondary effects of disease. It could take no account of, and would exclude all those toxic states of the blood which during life have an important relation to acute disordered mental conditions, for the reason that after death they cannot be traced. It would exclude also those functional diseases of the brain or gradual but progressive mental degenerations which make up a large but distinct class by themselves, and not marked by any post mortem changes as yet recognized, and cannot ever be expected to be discovered.

What is most desired is a nearness to some agreement to use a simple classification that shall have a rational basis for its construction—one that shall have the merit of conciseness, easily comprehended by the alienist and physician in general practice, not too technical, one that will commend itself to the courts, and yet come within the comprehension of fairly intelligent persons. There are terms used to designate common bodily diseases, as scarlet fever, small-pox, measles, etc., which names in themselves have no special significance, but from long usage are well understood. Our specialty should adhere to an early classification founded upon a rational basis, and not sympathize too strongly with a tendency that exists to destroy its value by displacing well-known names for those which have newness only to commend them, but otherwise have no special significance.

The students of mental philosophy have long agreed upon the existence of well defined faculties of the human mind. Two hundred years ago John Locke, and in the century following Sir John Hamilton and Dugald Stewart and their successors, have all in their way recognized some division of the faculties of the human mind and classified them. They have recognized the existence of the faculty of judging or forming conclusions, the faculty of the will, that of memory, the emotions or power of feeling, and recognized the senses as avenues for the conveyance of sensations to the brain. A prolonged change from the ordinary and orderly exercise of one or all of these faculties we say are among the symptoms of insanity. They are the leading manifestations of the existence of mental disease, without which it cannot be established. Its diagnosis will depend upon the degree to which the acts, the reasons assigned or suspected for doing them, the conduct and conversation which are together inconsistent with the established habit and character of the individual. To Pinel and his follower and pupil, Esquirol, is ascribed the honor of attempting a comprehensive classification of insanity. They lived in the period of the discussions of Sir John Hamilton and Dugald Stewart. They were founders (1790 to 1820) of a rational and humane system of caring for the insane, and published extensive reports of insanity, arranging their cases under four forms —mania, melancholia, dementia and idiocy. These terms have been regarded as generic from about the beginning of the last century. During the period which has elapsed since, there have been formulated by writers and authors sixty different forms of mania; fifty-seven forms of melancholia; twenty forms of *dementia*, and if we add one of recent date—Dementia Precox—the number will be twenty-one. Yet in this addition of the term Dementia Precox by Dr. Kraepelin we recognize not so much an attempt to exploit a new form of disease but rather to include a number of degenerative forms of mental disease hitherto described under various names, under one comprehensive form.

This is but a partial enumeration, but it is sufficient that the whole of it is expanded, liberal and comprehensive enough to include almost every kind of morbid mental manifestation, as well as to satisfy the propensity that has existed to consider every new name suggested by some prominent delusion of insanity that can be evolved from the dictionaries of the ancient and modern languages, as a distinct advance of science. Some of our profession who have the advantage of age, confess that in trying to differentiate the nice distinctions that have been drawn, they have been thrown into a confusional state of mind not unlike that which we sometimes ascribe to our patients.

Among the not uncommon experiences that confront the physician who appears in a court and qualifies as an expert, is that in struggling with our redundant classification, he is frequently pressed for the name of the form of mental disease concerning which some question has arisen. It seems to some to be of most importance to determine the *form* of insanity and that the question of its actual existence is a secondary consideration. It is in these quicksands of doubt and speculation that our profession has been sometimes hopelessly involved. Amid the confusion of contentious theorization it is quite common for the learned and ingenious counsel, and perhaps the court may join, to announce to a jury that the experts have shown no agreement among themselves, but rather the opposite, and to charge them then and in that case to use their common sense in framing their judgment. Is it a matter of surprise that he would so charge, or would it rather be a surprise if he did not so charge when science seems so uncertain?

While it has been easier to add to an already redundant and diffuse classification than to agree upon some limitations and uniformity, the British Medico-psychological Association, the Congress of Mental Medicine at Antwerp, 1885, a conference in the United States about the year 1888, the Paris Congress in 1889, as well as individuals of acknowledged experience, have recognized the necessity and advantage that would come from a simpler and uniform classification. In Great Britain the annual reports of asylums and of the commissioners of lunacy now present a uniform classification. In Belgium and France there has been adopted a much simpler and more satisfactory form. In the United States there is no uniformity, and there is a wide latitude. All of the classifications that have any authority as coming from a national association, or a congress of alienists, recognize the terms of Pinel and Esquirol as generic with limited or liberal sub-divisions. It has been said of Pinel's classification that it was right because founded upon the natural divisions of the human mind—was "really founded on nature." Dr. Griesinger, in his day the leading alienist of Germany, and author, placed his patients in three groups—States of Mental Exaltation; States of Mental Depression; States of Mental Weakness. All three states were subjects of sub-division.

In the official reports of the New York State Lunacy Commission, based on the statistics of the state hospitals, all of the cases are classed under fourteen forms and thirty assigned causes are reported. In the Pennsylvania Reports there appear twenty-nine forms and seventy-six assigned causes.

As has been stated heretofore, the forms of disease are based upon the prominent and dominant mental manifestations that appear at the date of admission—as, states of depression, exaltation, or weakness, and we may properly go further with such a sub-division as will indicate whether the condition is acute or chronic, whether recurrent, or some term or expression that will show the nature and intensity of the attack. Paresis must be recognized as a distinct form of disease, and may properly be assigned a place in the category. Another classification of cases that come properly to our hospitals deserve a distinct recognition. Reference is had to the agency of toxins and toxic agencies in producing acute maniacal disease with delirium, as from alcoholism, morphinism, drugs, puerperal insanity, syphilis, acute delirium, septic conditions, etc.

It must be borne in mind that while the forms assigned and reported are placed on our books at or about the time of admission, after all they are often but stages of a progressive degenerating disease rather than actual distinct entities. A case reported as melancholia may turn out to be in a developmental stage of mania, which in time will present the prominent stages of mental weakness, so that the same case may in its whole course present many of the marked phases of several insanities.

While it has been the purpose to present a trite topic in a very brief and condensed form, as time and the occasion would admit, the plea is made and renewed for a simple, uniform classification of mental diseases in order that its use may be understood by the profession, the courts and the laity who have an interest in our hospitals and our work. In this direction we believe the efforts of associations and congresses that have given out any expressions on the subject are to be accepted as a reaction of opinion, and a protest against a complicated, expansive, and a too technical classification or nomenclature of forms of insanity.

THE NATURAL NOURISHMENT OF INFANTS.

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L. Emmett Holt in his widely known text book on "Diseases of Infancy and Childhood," says in substance that while nothing is as good as good breast milk yet improper breast milk gives most unfavorable results. He also says that among the upper classes where the milk can be properly prepared and attended to "one should not be slow in adopting artificial feeding in cases of doubt." It would appear from this that the nursing ability of the American women has not yet reached a satisfactory state of development. Holt himself states that not more than a fourth of the mothers in his private practice who earnestly desire to nurse their infants are able to continue longer than the third month.

These words impressed me strongly because they reveal not only the confidence our American colleagues place in the artificial feeding of infants but also the relative unimportance they place on breast milk feeding. As a natural consequence physicians remove the baby from the breast for slighter provocations than the teachings and experiences of the German pediatrists permit. The employment of wet nurses unfortunately is not so generally adopted in America as with us and the difficulties in securing a suitable wet nurse tend to further restrict the natural form of nourishment. It must be said that even in Germany the ability of the women to nurse their infants is still far from perfect but by earnest endeavor and proper instruction many women can still be brought to fulfil this first and most important duty to their children. The conditions of life and the demands of society at the present time, however, render maternal nursing an art requiring a certain amount of what might be termed technical instruction in addition to a physiological ability to nurse.

It is my purpose in discussing breast milk feeding not to dwell upon the commonly accepted axioms or unimportant details. The vast importance of breast feeding in comparison with any substitute is too little recognized by the profession at large. Physicians should be convinced that unless no well grounded contraindications exist, days, weeks or a few months of breast feeding even if it supplements artificial feeding to a small degree is an advantage of great importance not only to the immediate development of the child but also for his whole life. Nothing can take its place and it should not be withheld from the child.

The sense of duty that induces a mother to nurse her child is gradually extending more and more owing to earnest work by physicians. Where this feeling is lacking it should be aroused. The question asked by the public "Shall I nurse?" should no longer be a question for the physician. The querry is merely "Can she nurse?" with the subsidiary question "May she nurse?"

To consider the last question first it must be said that there are but few circumstances that prevent a woman from nursing. No general rules can be laid down but each case must be determined on its own merits by the physician.

Syphilis. An uninfected mother should only be advised or permitted to nurse a child infected congenitally through the father if knowing the conditions she voluntarily consents for the sake of the child which in such cases is usually debilitated and often premature. On the basis of Colles' law such mothers are relatively immune against infection through their children but exceptions have been recorded especially among primipara. A syphilitic mother may not nurse an uninfected child. If both mother and child are affected it is doubly important for the child that it should be nursed by its mother.

Tuberculosis. Tubercular infection in the mother is an absolute contraindication for nursing. The danger lies not in the passage of toxins or bacteria through the milk but in the intimate association between the mother and the child. Even though the mother does not nurse she must exercise the greatest care not to infect the child. The function of lactation, moreover, is a drain upon the system of tubercular women that must be strictly guarded against.

Acute infectious fevers. Fevers in general form no contraindications to nursing unless associated with marked prostration or collapse. There is no reason, for instance, why a mother suffering from diphtheria should not nurse her child if stringent precautions are observed against infection through the air, clothes, etc. The fever itself exerts no deleterious influence on the milk and immunization of the child is affected through the milk in a number of these cases.

Nervous system. The strong influence exerted by the nervous system upon the secretion—not the formation—of the milk is well known. It is unscientific to say that mental disturbances and diseases can be transmitted through the milk from mother to child. Moreover it has not been proven that the chemical or physiological composition of the milk are directly affected by nervous disorders. The quantity and quality of the milk, however, depends much on the regularity and completeness with which it is taken from the gland. Resorption takes place if the breasts are not regularly emptied. This resorption slowly produces certain changes in the quality of the milk and a resulting diminution in the quantity. As the secretion of the mammae is influenced in a pronounced manner by the general nervous alterations it follows that nursing difficulties are more frequent in "nervous" women. It must be determined in each single case whether or not these difficulties are sufficient to forbid nursing.

The question "can the mother nurse" must partly be considered before the birth of the child. Mothers who have successfully nursed one or more children and whose health and breasts have suffered no change probably will have no difficulty. The widely spread inability to nurse lies chiefly in the inactivity, hereditary atrophy of the mammæ, bad customs, etc. In these cases very often can the succeeding generation be made capable of nursing by proper prophylactic care.

The presence of glandular tissue, which must be differentiated from adipose tissue, can be detected by palpation towards the end of pregnancy. The secretion of a few watery drops shows that the function of the glands is normal. Rubbing the nipples and breasts with alcohol is a good preparation for nursing as it tends to harden the skin and renders it less liable to irritation and disease.

Mastitis and depressed nipples are the two most important external contraindications to nursing. If the infant cannot grasp the nipple the best breast is of no value. Massage of the nipple has little effect when the depression is of a severe grade but for the simpler cases the breast pump or certain mechanical nipples can be employed. The nipples and breasts are not fully developed until lactation commences. Cleanliness of the parts and regular and complete emptying of the breasts will prevent mastitis.

The most frequent excuse or reason given for not nursing is that there is "no milk" or "not enough milk." In order to discuss this point intelligently we will briefly consider the physiology of lactation. A few drops of a yellowish watery fluid appear towards the end of pregnancy. This fluid becomes more profuse a few hours after birth until the second day and can be squeezed out in a fine stream. This first milk or colostrum is rich in globulin and poor in fat. It forms a transition period in the production of milk. The colostrum bodies are leucocytes which remove the fat from the milk as long as no removal of the milk takes place. Any later damming back and resulting absorption results in the reappearance of this colostrum milk. The colostrum disappears and normal milk appears as soon as the infant is able by vigorous sucking to establish the full secretive powers of the glands. The breast milk is slower in appearing where there is any interference with a complete removal. Weak and premature infants, undeveloped nipples, breasts, etc., are among the causes producing this interference. Artificial removal should be employed in these cases or another and older infant placed on the breast. The latter means is the rule in our foundling asylums and babies' hospitals.

Whether the breast can secrete enough milk cannot be judged before the tenth to fourteenth day. A complete removal with avoidance of retention is the Golden Rule of lactation and with this precaution nearly every mother can be safely carried through the puerperal period perfectly able to nurse her baby. During the entire period of lactation the same rule should be observed.

"La quantité du lait varie avec la demande," says Budin and the experience in our Säuglingsheim confirms his view. There the wet nurses are able to nurse two or three infants and yet can withdraw milk by massage for the sick infants. Professor Schlossman in Dresden has wet nurses who can furnish as high as four and three quarter liters of milk daily and in our Munich Säuglingsheim the same amount has been obtained without difficulty. The reverse of this experience is often seen when a good wet nurse leaves the hospital to go into a private family and is soon sent back because "she has no milk." The reason for the incomplete removal lies in the small size or weakness of the baby or through bad habits of nursing such as irregular and too frequent feeding. The appetite of the child is thus destroyed and the breasts become accustomed to secrete only small quantities of milk. The remainder is reabsorbed and the total amount diminished. The following case illustrates this point. A wet nurse at our Säuglingsheim secreted two and a half to three liters of milk daily and left to take a position as private wet nurse. She was returned to the hospital in less than two weeks with the complaint that there was not enough milk. A test at that time showed the milk reduced in quantity to 100 cubic centimetres. At the end of a week under the original hospital conditions the amount of milk had risen to two and a half liters per diem. This seems to demonstrate the truth of Budin's axiom. Since these women are able to produce more milk than is required for one child it follows that every healthy woman is capable of producing a normal amount of milk provided the nursing is governed by the rules already mentioned. Nevertheless no physician would deny that some women are incapable of producing a requisite amount of milk. Such women should never omit to nurse their babies as much as they are able and the deficiency should be replaced by artificial feeding. This "allaitement mixté" to which we will refer later, enables many mothers to give their infants the benefits of partial breast milk feedings. It may lead to a more copious secretion and even to a normal nursing ability in later lactations.

The baby should not be taken away from the breast during the first few weeks of life on account of insufficiency of the milk unless it is absolutely necessary. The involution and puerperal period are benefitted by regular nursing. The child should be given the breast for the first time from six to twelve hours after birth. It is often a difficult and long struggle to make the infant take hold of the nipple.

The nursing should be repeated at irregular intervals until the child begins to drink. Then the intervals should be gradually lessened to three hours. Only premature or otherwise weakly children should be nursed more frequently. In the second six months four-hour intervals will rarely be too long and these may be later increased to five hours. The stomach should be empty before it again receives food. The night feedings should not be oftener than six or eight hours. Regularity in nursing diminishes the care of the mother and interferes less with her ordinary duties and habits. The first nursings are quite painful and the uterine after pains show the close physiological relation between lactation and involution.

The entire nipple should be taken into the child's mouth, as one of the most common causes of fissures is an incomplete grasp of the nipple. These fissures are extremely painful and present points of entry for bacteria and a resulting mastitis. They should be properly treated but they do not form a sufficient ground for interrupting the nursing. The child can swallow blood from the fissured nipple—which may cause vomiting and bloody stools and give rise to a faulty diagnosis (melæna).

I shall not enter into a consideration of the chemistry and physiology of milk nor the differences between mother's milk and cow's milk. It is well known that breast milk is subject to marked changes in different individuals and in the same individual at different times. The first milk from a normal breast is low in fat and high in proteids and at the end of nursing the fat is high and the proteids low. Pawlow has shown that fat and albumin together are very difficult of digestion. The fat retards the gastric secretions and increases the pancreatic juices so the albuminoids are not acted upon by the proper gastric ferments. Breast fed babies therefore have the decided advantage of digesting the albuminoids before the fat is received in the stomach.

The physician should always examine the milk whenever there are disturbances warranting it. The examination should include the macroscopic appearance (color, consistency, etc.), microscopic (colostrum, size of fat globules) specific gravity, sugar and fat determinations. The Babcock method is much used in America for the estimation of fat. The quantitative determination of sugar can be made by Fehling's method. In place of the tedious quantitative estimation of the proteids one can determine the amount of total solids and deduct the percentages previously determined for fat, sugar, and salts (.2 of 1 %) [*Medical Record No.* 14, 1903]. The appearance of colostrum corpuscles during lactation always indicates a resorption of the retained milk and the danger of the milk's drying up can only be prevented by a thorough emptying of the breast. In such cases the amount of colostrum will have prognostic value.

When a nursing infant is taking enough proper milk there will be a uniform gain in weight. The infant should be satisfied with seven feedings at first of from ten to twenty minutes duration and later this number may be reduced to five.

As the majority of our mothers are incapable of sufficiently nursing their children it is of great practical importance to determine the average amount of milk necessary for a normal nursing child. Numerous observations of the average amount of milk taken by normal breast babies at different feedings has appeared in the German as well as foreign literature. Those who have systematically weighed a baby before and after a nursing know that the quantity taken at each nursing varies as well as that taken for the entire day—another essential difference between physiological and artificial feeding. From calculations made by different authors it can be said that a strong breast baby in the first two months consumes daily about one-fifth of his body weight of milk. In the second quarter of the year this quotient diminishes to one-sixth or one-seventh and in the later months to one-eighth or one-ninth. For example, a two months' old child weighing 4000 grammes would take one-fifth of 4000 or 800 grammes daily. A six or seven months' old child weighing 7000 grammes, would take at the utmost 1000 grammes.

From the most reliable observations I have prepared formulæ that express this relation and can recommend them as being fairly reliable for the average feeding. They can be adapted for any infant at any period of lactation.

The quantity of mother's milk is represented by x, the weight of the child by p, the age in weeks by w, and the age in months by m.

The formulæ from one to six months would read $x = \frac{p}{100} x \frac{78 - w}{4}$

Example. A child of six weeks weighs 4200 grammes.

$x = \frac{4200}{100} \times \frac{78-6}{4} = x = 42 \times 18 = x = 756$ grammes, the required amount of milk.

For the remainder of the time the child is fed upon milk the formulæ would read: $x = \frac{p}{100} \times (20 - m)$.

Example. An eight months baby weighing 8500 grammes.

$x = \frac{8500}{100} \times (20 - 8) = x = 85 \times 12 = x = 1020$ grammes.

The indications that a sufficient amount of a proper nourishment is being given are found in the increase in weight and in the function and general appearance of the bowels. The weight curve in healthy breast babies shows greater regularity than with any form of artificial feeding. There are no abrupt changes either in loss or gain. A weekly increase in weight of 150-200 grammes is sufficient for the first few months. As the child grows older the weekly increase in weight diminishes. The body of the infant should show a uniform development without any disproportionate increase in the amount of fat. The pale, waxy hue of the fat, flabby body of the overfed breast baby is an evident sign of ill health. The bowels should be evacuated spontaneously several times a day. Provided the movements are normal they may be even more frequent in a healthy breast baby. The normal breast stool has a characteristic and sour odor entirely different from the usually fetid odor of the cow milk stool. The color is golden yellow and the consistency is seldom the ideal homogeneous but is usually thinner and contains small clumps. The reaction is invariably acid. Chemically it is poorer in organic phosphorus than the cow milk stool. Bacteriologically one finds Gram-staining acidophilous bacteria in almost pure culture. A greenish, clumpy, mildly dyspeptic stool resembling the early colostrum stools may return at any time during lactation in consequence of some gastro-intestinal disturbance. Constipation easily occurs in overfed breast babies and also in underfed breast babies on account of the almost complete absorption of the mothers' milk (pseudo-constipation of Czerny.)

An infant receiving sufficient food urinates frequently because the amount of urine should equal from sixty to seventy per cent. of the milk consumed if the proper amount of nourishment is taken.

Before considering the question of weaning it might be well to discuss briefly the nourishment and hygiene of the mother. This is generally regarded by both the physician and the laity as a most important question. Formerly a great many things were forbidden and a strict diet prescribed. A nursing mother was urged to take gruels, large quantities of milk and foods rich in carbohydrates. Beer was and still is considered by many people as an indispensable factor in producing an adequate amount of milk. Fish, game, fatty goods, salad, fruit and many other things were forbidden. To-day, however, we do not conform to a narrow diet. Schlossmann has shown that a nursing woman should be allowed to eat whatever she wants provided it does not disturb her digestion. He claims that monotonous overfilling is unnecessary and results only in spoiling the mother's appetite and thereby impairing her health and efficiency. The nursing mother should observe a certain caution in taking spices, acids and other things transmittable through the milk. She should also abstain from the much vaunted beer and other alcoholic beverages. Schlossmann, who is one of our first authorities, supports this opinion. These beverages in no way tend to increase the quantity of milk secreted. Their only action is dependent upon a possible increase in blood pressure but the same goal is reached by exercise, fresh air and the ingestion of large quantities of otherwise harmless fluids. As to the question of lactagogues. Many of these are on the market and the manufacturers and druggists loudly proclaim their powers. I consider them all superfluous and many have not even the advantage of being harmless. The best lactagogues are good hygiene and moderate exercise. The secretion of a liter of milk daily represents a considerable expenditure of energy on the part of the mother that must be compensated for. On this account while she need not give up her customary household duties, yet she must guard against overexertion, exciting amusements, mental emotion, etc. Menstruation may possibly cause a slight restlessness or a light dyspepsia, but the baby should never be removed from the breast on this account. Neither menstruation nor a new conception are hindered by nursing a child although pregnancy may put an end to the nursing after a space of time.

The change to a mixed food should take place about the ninth or tenth month. The practice of nursing after the tenth month and even into the first or second year is contrary to physiology. Milk after this time does not contain all the elements demanded by the rapidly growing organism. As an illustration I need only mention the lack of iron in mother's milk as shown by the investigation of Bunge. The eruption of the first teeth between the fifth and sixth month is no indication for weaning. The mechanism of suckling prevents biting and only when the infant does not receive enough nourishment does he show his teeth. The weaning should take place gradually. Sudden weaning is associated with some danger to the infant and moreover until it is ascertained that the artificial food agrees with the infant, the breast milk should not be entirely withdrawn. This is termed " allaitement mixté." We have already spoken of the advantages of this method. Where the secretion of milk is insufficient, when it is necessary to cover a temporary deficit in the amount of milk, where the occupation of the mother prevents her nursing at certain periods of the day, where there are twins and the demand upon the breasts is excessive—in all these cases this method is indispensable. It can be carried out in two different ways. The infant can receive some artificial food at each nursing, in which case it is mixed with breast milk in the stomach. The best way, however, is where some of the feedings are entirely replaced by the artificial food. The substitution should go on slowly and the weight and stools be carefully observed. When the number of breast feedings have been reduced to two, one can proceed more quickly on account of the danger of the milk drying up and the colostrum bodies reappearing.

I prefer for the mixed feeding and later artificial feeding a mixture of cow's milk and a ten or fifteen per cent. solution of Soxhlet's Nährzucker (dextrin, malt and lactose slightly aridified). The proportion of milk is slowly and carefully increased. Broths and cereals can be added to the diet when the child reaches the age of physiological weaning.

I will not dwell upon the question of wet nurses as I know that they are not so favorably received in America as with us. It seems to me better that an unmarried woman should use her nursing capability for the benefit of others than to allow it to dry up unused under the pressure of her social condition. It would be better for her and for her child. The same general rules apply to wet nurses as to mothers.

I have outlined a few of the more important features of breast feeding as regards a normal healthy baby. There is little further to be said about the nourishment of sick infants than that demanded by the pathology and therapy of the disease. It is important to bear in mind two things: first, that the lives of many weak, atrophic, premature, syphilitic, etc., infants can be saved by breast milk; second, that in severe gastro-intestinal disturbances of breast babies it is seldom necessary to stop nursing or to change the diet except to reduce the quantity. In many cases of gastro-intestinal disease in artificially fed infants the best medicine is breast milk.

In conclusion I would again state that there is no satisfactory substitute for breast milk. Perseverance, intelligence and patience, however, will enable many more women to give their children, at least partially, the benefits of mother's milk. Every woman, where no contraindications exist should attempt to fulfil this great duty.

The exercise of this function will tend to improve the nursing ability of generations to follow. By its more general use one of the chief causes of the high infant mortality will be removed and the health and strength of the oncoming babies will be improved, and we will fufil the demand of Rousseau "retourner à la nature."

THE MEDICAL ASPECT OF ACUTE APPENDICITIS.

Read before the Medical Society of the County of Albany, November 16, 1904.

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In these days of surgical triumphs it may seem rash for a physician to lay claim to any part of the treament of appendicitis except to acknowledge his own apparent helplessness and to act as a runner for a surgical confrère. When it is considered, however, that it is the physician who sees and diagnosticates the disease in its incipiency; that upon his judgment rests the responsibility of appreciating the gravity of the case and calling in aid, either medical or surgical; that to him the family look to decide for them the wisdom of any proposed step and that he must often bear the onus of any unfortunate result following a procedure which he may or may not have fully approved; the part of the physician is seen to be no small one. It is a natural tendency for all of us to judge from our limited experience rather than from a broad standpoint of general knowledge. The surgeon is therefore apt to base his statements upon the severe forms which he meets and does not include in his view the vast majority of cases which run a mild course, do not need operation and recover perfectly. The discussion of this disease in the newspapers, the radical and perhaps unwise statements of ambitious surgeons, publicly disseminated, has created in the general public such an appendicitis-phobia that the family physician is often so terrorized by this fear, so dazzled by surgical claims and befogged by such an array of possible complications that he loses the calm judgment necessary for decision.

I know of no disease which gives the physician so much anxiety, much of which would seem to be unnecessary. If he calls in a surgeon and the patient lives, he is apt to be told that he did it just in the nick of time and that further delay would have been inevitably fatal; if the patient dies after operation he is blamed for murdering his patient by criminal postponement; if the patient recovers without an operation he is informed that he has taken an almost criminal risk and that the penalty of an outraged surgical nemesis will surely be a prompt recurrence and a certainly fatal termination.

Never is it admitted that an operation is unnecessary and never is even a suspicion breathed that a patient who died after an operation might have recovered without operation. That the latter statement is not merely a figment of the imagination, my own experience in several cases bears witness. Dennis states the mortality of the simple operation is appaling in the hand of an inexperienced surgeon and reports the case of a surgeon who in nineteen successive cases of appendicitis had a mortality of nineteen. Comment seems unnecessary but that surgeon would probably have been loath to admit that any one of these nineteen cases would have been saved without an operation.

The object, therefore, of the physician should be to ascertain the line of treatment which in the general offers the best results for the class of cases which he meets and to modify such treatment in any individual case as the condition warrants. It must be accepted that the disease will have some mortality rate no matter what the line of medical or surgical treatment employed. There are certain malignant types of the disease due either to the reduced resistance of the organism or to the increased virulency of the morbid agent which under any and every condition will necessarily prove fatal.

If the statistics of this disease for the past two decades are reviewed, the conclusion seems inevitable that either the type of disease has progressed exceedingly in its malignancy or that our modern surgical methods do not as a whole accomplish as much as is usually claimed for them.

Sahli investigated 7,213 cases of appendicitis occuring in Switzerland. Of these 6,740 were treated medically with a mortality of 591 or eight and eight-tenths per cent. Four hundred and seventy-three were operated upon with a mortality of twenty-one and three-tenths per cent. Four thousand five hundred and ninety-three cases kept under observation showed a recurrence of twenty and eight-tenths per cent.

Reidel, of Jena, has collected the histories of 992 cases from physicians personally known. Five hundred and twelve were classed as mild attacks and the mortality was *nil*. Of these mild cases 100 had relapses, nineteen and five-tenths per cent., and in the relapse two died. Four hundred and seventy-nine were classified as severe cases, of these 109 died, making a mortality of ten and ninety-eight per cent., while there were eighty-seven relapses, twenty-five and seven-tenths per cent., of whom ten died, making a total mortality of twelve and eighteen-hundredths per cent., including deaths in the recurrences. If the statistics of individual clinicians who have treated appendicitis medically are considered, the results are much more favorable. Hollander treated eighty cases and had no deaths; Guttman at the Moabit Hospital had ninety-six per cent. recovery. Renvers a mortality of four and five-tenths per cent. Vollert in the first clinic at Vienna four and six-tenths per cent.; Gerhard, five-tenths per cent.; Kleinwachter in 147 cases lost five and four-tenths per cent.; Curschman, four and five-tenths per cent. in 453 cases and nine were sent to the surgeon.

Nothnagel states that in 130 cases, 115 were cured or improved, four died without an operation, and eleven were sent to the surgeon. Hawkins at St. Thomas' Hospital had 190 cases, excluding cases of perityphilitic abscess and general peritonitis with 190 recoveries and only one patient was operated upon. Kummell, of Hamburg, collected 1,783 cases with a mortality of ninety-two, or five and two-tenths per cent. One hundred and sixty-three were operated upon in the acute condition with a mortality of fifty-six or thirty-five per cent., while 508 were interval operations with a mortality of five, or nine-tenths per cent.

Bourget, professor of clinical medicine at Lusanne, has treated many cases of appendicitis during the last ten years and gives minute details of twenty-six cases treated in 1901. He declares that he had no operations, no accidents and not a single death. Chauvel's statistics of the French army show that the old fashioned treatment compares favorably with the present method of almost constant excision. In the General Hospital for Birmingham, deaths from appendicitis have increased six times over the twenty years previous thereto according to pathological findings. Five fatal cases of appendicitis occurred in the Glasgow Western Infirmary during ten years under non-surgical treatment. Hilton Fagge says: "Even when typhilitis presents itself clinically under the guise of intestinal obstruction or of diffuse acute peritonitis, I believe that it scarcely ever destroys life if judiciously treated. There may be cases in which a considerable part of the appendix sloughs off and in which death is inevitable, but I only know of one fatal case as having occurred within the last five years at Guy's Hospital if I may exclude cases in which death took place a few hours after admission and in which purgatives had been freely given." Leube, physician-in-chief to the Julius Hospital, Würzburg, personally stated to the writer in 1899 that as far as he could remember he had not lost a case of appendicitis in the previous five years nor had one been operated upon.

Although my personal experience is not extensive, I have never had a case of acute appendicitis die nor has one been operated upon in the acute stage. This same experience has been the fortunate lot of several medical friends of wide clinical experience.

The claim that appendicitis has become for some conceivable reason much more frequent and virulent, although seemingly true from a limited view, is contradicted by general statistics. Dr. Villaret, surgeon-general at Posen, denies that appendicitis has increased. The apparent increase is due to an improvement in diagnosis, as many cases registered as peritonitis, gastric and hepatic disease are now registered as appendicitis. He quotes the statistics of the German army, comparing 1873-'74, 1885-'86, 1900-'01. While cases of appendicitis have increased seventy per cent., those of hepatic disease have decreased sixty-four and two-tenths per cent., of peritonitis seventy and two-tenths per cent., and of gastric disease seventy-nine and nine-tenths per cent. These four diseases attacked formerly four and seventy-nine hundredths in every thousand, but in 1900-'01 attacked only two and sixty-six hundredths, a decrease of forty-four and five-tenths per cent. In Melbourne in 1880 there were seventy-seven deaths from allied abdominal conditions, ulceration and structure of the intestines, ileus and peritonitis; in 1902 there were 139 deaths from the same group. If these are estimated by population, the ratio is practically the same.

Cases of acute appendicitis therefore recover without operation in from ninety to ninety-five per cent. of cases and relapses occur in not more than one-fourth of the cases.

This is the mortality rate under every imaginable medical condition, favorable or otherwise, while under the best surgical care the mortality rate of Deaver and Richardson in all cases is five per cent. What the mortality would be under second, third or fourth rate surgeons one can only surmise.

The question at once arises whether 100 persons are to be subjected to the expense, danger and anxiety of an immediate abdominal operation, necessary only in five to ten per cent. of the cases. Treves says it would be as wise to advise immediate operation in all cases of ulcer of the stomach as soon as the diagnosis is made, because some cases of ulcer of the stomach end in a fatal perforation.

Without entrenching upon the paper of the pathologist, a slight diversion may not be amiss in order to make clear certain points which have a therapeutic significance. The appendix is practically placed in a cavity and surrounded by somewhat fixed tissue except toward the median line. Above is the lower end of the caecum and the caecal end of the ileum; on the right and in front the parietal peritoneum; posteriorly the peritoneum covering the iliacus muscle; towards the median line, loops of small intestine. If the small intestine is therefore kept practically immobile, there is a complete cavity. The blood supply of the omentum is abundant and will readily counteract severe infection by walling off the surrounding tissues, if permitted. These adhesions become stronger every hour and if no disturbance ensues will afford effective protection. If infection of the general peritoneal cavity occurs, it is probably due to the absence of this cavity formation, the result of intestinal peristalsis.

The importance of intestinal quiet in preventing the extension of infection cannot be overestimated. If the appendix is displaced upwards or is retro-caecal, the same applies even more markedly. The muscular rigidity, the painful motion and the usual constipation are strong indications of what nature is seeking to accomplish in providing rest to the inflamed parts. The appendix inflames readily, because it is less resistant on account of being a retrograde organ and the natural difficulty in drainage. Any swelling of the mucous membranes tends to an occlusion of the constricted outlet. Secretions or faecal matter are retained and form a nidus for the growth of micro-organisms. The variability of the bacterial virulency and of the resisting power of the organism determines the great differences in the clinical manifestations of appendicitis. These are:

(1) appendicular colic,
(2) simple catarrhal appendicitis,
(3) severe or complicated appendicitis.

The appendicular colic, due to some interference with the drainage of the appendix, does not usually come under medical observation. It is a sharp pain in the right iliac fossa lasting one-half to three hours, followed by tenderness for one to four days, and removed by hot applications locally and castor oil internally. It should be differentiated from renal, biliary intestinal and uterine colics.

In the simple catarrhal appendicitis there is fever of moderate degree, severe pain with tenderness localized in the right iliac fossa, constipation and usually nausea and vomiting. The pain, which most often calls the attention of the physician and patient to an abdominal condition, is usually localized in the right iliac fossa, although it is often at the onset referred to the umbilical, epigastric or other region and may be diffused over the entire abdomen. Closely associated with the pain is the rigidity of the abdominal muscles. At the beginning this also is diffuse, but becomes more localized as the severe pain subsides. Rigidity of the lower right quadrant appears only when pain is felt over the appendix. If it continues over a large area it indicates a diffuse peritonitis. In some cases it may be entirely absent and there may be even a perforated and gangrenous appendix without rigidity. With this rigidity the costal type of respiration is significant. Cutaneous hyperaesthesia which is often present is attributed by Head to tension and is obtained by gently stroking or pinching the skin until the affected area is detected. It chiefly affects the eleventh dorsal area, but may in severe cases encroach upon the two adjoining segments.

Deep tenderness is present at McBurney's point, which corresponds to the ileo-caecal valve and the base of the appendix. There is some tenderness, however, in healthy people at this point (Treves). Later this tenderness may be due to an abscess.

Distension in the early stage may be reflex (?) and in the later stages due to the decomposition of the intestinal contents and resulting paralysis. Shivering is not uncommon, but a definite rigor is a grave symptom and usually indicates a gangrenous appendix.

Vomiting is the rule in acute cases, but is often absent in the ultra-acute. It is a serious symptom if it returns and becomes persistent, and especially so if food by mouth has been discontinued. Constipation is more frequent and diarrhoea usually indicates a grave attack.

In the severe or complicated cases of appendicitis these symptoms are usually intensified, although the symptoms of severe cases may be masked. They may have a normal temperature and a pulse rate of eighty. A rising pulse with a falling temperature and a too rapid fall to subnormal, especially if the patient shows any signs of drowsiness, are bad signs. A low temperature, a slow pulse and the disappearance of pain may indicate gangrenous process or septic peritonitis, the beginning of the end. If the case has begun with severe pain and appears to be mild in type as determined by a cursory examination, be suspicious. If the pain subsides and the appendix remains very tender in spite of anodynes, think of the probability of necrosis. Be on your guard when there is severe onset, no great local swelling, moderate tenderness over the coecum, but where deep palpation reveals acute localized tenderness. Obstruction and tympanites are bad signs and frequently indicate general peritonitis. A sudden drop in the temperature often indicates perforation. High temperature with remissions points to septic phlebitis or pyaemia.

Tumor may be mistaken due to a limited contraction of the flat abdominal muscles, to the hardening under palpation of the long muscular band of the caecum or to local muscular rigidity. When a tumor does not appear, if the case is severe, in a short time, it is grave sign. Examination of the rectum should never be omitted, especially in women, to distinguish this condition from pelvic inflammation.

Among the conditions which may be confounded with appendicitis are intussusception, ulceration of Meckel's diverticulum, tuberculosis of the ileum, pyosalpinx, tubal pregnancy, perforated gastric or intestinal ulcer, acute pancreatitis, hepatic, perinephritic and pericaecal abscess. In a woman right sided tubal or ovarian disease should always be excluded.

The thought must occur to all of us, why is it not possible in some way to differentiate the cases which run an uneventful course to recovery and need neither meddlesome medicine nor still less strenuous surgery from those few where a life may depend upon prompt recognition and quick action. This effort has been made by seeking to determine the differences in the leucocytosis in different conditions. Leucocytosis is the curative reaction of the organism against infection and depends upon two unknown factors—the intensity of the infection and the reactive power of the organism. Lecocytosis, however, may be temporary so that more than one examination is necessary to draw a correct conclusion. There is also an inflammatory as well as a suppurative leucocytosis. In the mild cases the leucocytes number 10,000 to 15,000, often reach 20,000, and in a few cases 30,000. This increase is transitory and falls on the fourth to the fifth day.

Many cases with pus have 35,000 to 56,000 leucocytes, a number never reached by the simple cases; but some in which there is hypertoxicity with diminished reaction of the body or an encysted abscess with a thick fibrous wall give a low leucocyte count.

Federman claims that every case of appendicitis from the simple to the severe form has a typical leucocyte curve and that this curve varies with the intensity of the process. In the milder cases, the lower the leucocyte curve in the beginning of the disease, the more rapidly it falls, parallel with the other symptoms, to normal. The more severe the infection, the higher the leucocytosis, the longer it continues at that height and then gradually or quickly falls to normal.

In the most desperate cases after a brief increase, the leucocytosis sinks quickly while the other clinical symptoms continue severe. In the first two days the significance and value of leucocytosis is most difficult to appreciate and uncertain in value, as the conditions which modify leucocytosis in the beginning are to a great extent unknown. From the third to the fifth day the leucocytosis count has more value. All patients having severe clinical symptoms with a low leucocytosis count died after operation, while all having severe clinical symptoms with a high leucocytosis count lived after operation even when performed on the fourth day. The qualitative determination of the leucocytes is thought to be of greater importance. The multinuclear leucocytes which normally number sixty-five to seventy per cent. may be increased to about ninety per cent. and even higher, thus indicating a severe type of disease.

It would appear then that if the leucocytosis count is low in the fourth day that the organism evinces such a poor reactive power that it cannot possibly resist the added exhaustion of an operation and that therefore in these cases non-operative procedure necessarily is preferable.

The true object of medicine must be to save every person possible and to be satisfied with nothing less. In pursuance of this result many surgeons have advocated operation within the first twenty-four hours as being practically free from danger. The objection to that is that the public are not quite so anxious to be operated upon and decidedly object to a serious and immediate operation for a condition which on the following day may prove to have been trivial, as it is often impossible in the first twenty-four hours to differentiate in many cases between severe appendicular colic, mild catarrhal appenditis and severe appendicitis. Then too many patients may live at such distances from suitable surgical aid as to render an immediate operation out of the question.

It is surely a dangerous thing to advocate that every cross-roads surgeon should operate upon every patient with a pain in the right iliac fossa. No one knows the mortality under such conditions as the results when bad are never published.

It would seem as if it might be wise to follow nature's lead. Absolute rest and complete fixation. Leube obtains this by perfect rest in bed, ice bag locally over the appendix, withdrawal of all food except a little sweetened water, which has been shown to be absorbed by the stomach, and the use of rectal suppositories of opium in moderation to stop intestinal peristalsis and to mitigate pain.

The bowels are allowed to remain constipated for a week or ten days and then gently washed out with normal salt solution. A similar but modified method of treatment has been advocated in this country by Ochsner, of Chicago, and his remarkable success has had great influence upon many surgeons. His claim is that every case of appendicitis should be operated upon in the first thirty-six hours, but if this is not possible it is best to wait until the acute attack subsides, unless there develops a circumscribed abscess which should be opened and drained.

When gangrene or perforation has occurred he believes there is more danger in immediate operation than in waiting. His treatment consists in withholding absolutely all food by mouth and in prohibiting catharsis. If there is marked nausea and vomiting, the stomach is washed out and this is repeated if the nausea persists. Small nutrient enemata are given unless they cause pain or nausea and for the thirst enemata of normal salt are given. The patient is placed under this treatment until the acute condition subsides. In the last 566 cases treated by him up to December 5, 1903, there were: thirteen cases with general peritonitis, with four deaths (thirty and seven-tenths per cent.); eighty-one cases with abscess, with one death (one and one-fourth per cent.); 173 cases without abscess, with three deaths (one and three-fourths per cent.); 297 cases chronic and interval, with two deaths (two-thirds per cent.); total mortality in 564 cases, one and seven-tenths per cent.

Two cases of diffuse peritonitis not operated upon as they seemed hopeless on entrance are not included. He claims a recovery rate of ninety per cent. in acute perforative cases, although he had previously lost one-third of his cases by operation.

Dennis, who agrees to a large extent in either view of Ochsner, had in 119 cases a mortality of one and six-tenths per cent. These cases were: eighty interval operations, mortality, 0; eleven purulent peritonitis, mortality, 0; twenty-eight acute perforative appendicitis, mortality, two-sevenths per cent.; total, 119, mortality, 2, or one and six-tenths per cent.

When one considers the difficulty at times of early diagnosis, the oftentimes unsatisfactory surroundings and the frequently inevitable delay in securing competent surgical aid, it would seem that the safe and sane way of treatment in the vast majority of acute cases would be the conservative method. After the acute condition had subsided, the question of operation, which is then practically free from mortality, can be considered. No need at this time of elaborate parapharnalia, no necessity for multitudinous medication and dietetic strenuosity; simple rest and quiet with a watchful vigilance which while keeping in mind complications will not cross bridges before arriving at them nor make mountains out of mole hills. Our treatment should be armed peace ever watchful and always prepared.

Editorial

> Mrs. Moss had eight children but could never overcome her regret that the twins had not lived.
>
> *The Mill on the Floss* GEORGE ELIOT.

The Albany Guild for the Care of the Sick

The beginning and development of the corporation known as The Albany Guild for the Care of the Sick were from the Fruit and Flower Mission which was organized the thirtieth of March, 1880, for the purpose of dispensing fruit and flowers to such sick, convalescents or incurables as were referred to the Executive Committee by churches or individuals. Later on more material assistance was added, such as tea, sugar, eggs, cereals, sometimes bread, occasionally potatoes and canned vegetables; finally clothing and coal were given, and even rent was paid.

It was nine years before a climax was reached, and then the Executive Committee realized that the trend of the work had been to pauperize, although the aim had been one of helpfulness.

In order to place the work on a different foundation, it was resolved to try the experiment of employing a trained nurse for the sick poor, who should not only take care of the patient but instruct the family in the care of their own sick, and teach how to prepare the necessary diet, and emphasize the laws of cleanliness and morals.

This reorganization took place in October, 1889, and the name became the Fruit and Flower Committee. To teach the poor to help themselves began now to take the place of sympathetic and indiscriminate giving. In order to have the purpose of this work more thoroughly understood, the name was changed in 1896 to The Albany Guild for the Care of the Sick Poor, and the work was based somewhat on the plan of district nursing carried on in Boston, and their valuable method of weekly records was adopted and continues to be a factor in Guild work. But the Guild has gone beyond the scope of the Boston work, or of any work similarly organized.

It was in 1896 that the Board of Governors of the Albany Hospital consented to try the experiment of having a Guild nurse in the dispensary from 11 a. m. to 1 p. m. Gradually the hours have been extended, and the field of work broadened until all dispensary hours are covered in the Albany Hospital, South End Dispensary, Faith Mission Dispensary. The duty of a Guild nurse is to record the names and history of applicants; preserve order; render assistance to the attending physicians as required; and see that prescriptions are filled and handed to patients. From this service comes the personal acquaintance with the poor which makes the nurse a friend, and insures her a welcome when sickness calls her to the home. It also gives the attending physicians an opportunity to instruct the nurse in the observation of a patient in his house who has been examined at the dispensary.

It was in 1896 also that, at the suggestion of physicians, the experiment of visiting nurses for people of limited means was undertaken, in order that people who were neither of the rich nor of the poor might be provided with skilled nursing care at moderate charge.

The sixth of October, 1897, this experiment was made a department, and assistant nurses for cases requiring constant care became a factor in the work. The Guild has developed a regular course of training for the assistant nurse, covering a period of two and a half years, which includes experience under a graduate nurse, in the care of the sick; assisting, when off duty, in minor surgery at one of the dispensaries; obstetrical clinics at the Guild House; experience in sterilizing; recitations from text-books to the head nurse; and a course of valuable lectures through the kindness of physicians.

At the close of the period of training, the assistant nurse, if she has reached the required standard, receives a certificate which entitles her to be considered a high grade domestic nurse, and enables her to register as a nurse certificated by the Albany Guild.

February 9, 1897, the Guild was incorporated under the name of The Albany Guild for the Care of the Sick Poor, its particular objects being "The care of the sick poor in the City of Albany in their homes, including the employment of trained nurses; the instruction in home-nursing and care of the sick; the preparation of diet for the sick; and instruction in the laws of health, morals, and wholesome living."

At this time two graduate nurses were carrying the work, and the district physicians were beginning to co-operate with the Guild.

In February, 1900, dentistry for the poor was undertaken, the dentists most generously co-operating with the Guild in this experiment. This became a department December 3, 1902.

Although slow in its growth, it has already proved that it is work that should command the attention of the Guild.

In October, 1900, an experimental Special Obstetrical Department was undertaken in connection with the Medical College, the object on the part of the College being to provide for senior students practical experience in obstetrics before graduation, and on the part of the Guild the arrangement for skilled care from able obstetricians and graduate nurses for poor women coming under this department, who otherwise might come under the care of the midwife.

The entire responsibility of this department was assumed by the Guild in September, 1903. The initial report of the Special Obstetrical Committee was made to the Advisory Board and Executive Committee, by the Chairman, October 27, 1903, in which was outlined the development and growth of the work, its value to students and patients, and the avenues of usefulness and practical experience opened by this department of a course of one or two months for the senior pupils in training schools. The report closed with the opinion expressed by an eminent physician of Albany, "That the Guild through this department is accomplishing more in restraining midwifery than had resulted so far from legislation on that subject."

This department is still experimental, and will remain so until the methods have been thoroughly tested and well grounded. The value of the work is thus far unquestionable, and the growth has been most satisfactory.

The Special Obstetrical room in the Guild House gives opportunity for clinics for students and Guild nurses; the students report daily at the office in the Guild House, and at a desk provided for the purpose they enter their notes and records in books which are in due time inspected by the Head Obstetrician.

Sterilizing of clothing and instruments for this department, as well as for the general work of the Guild, is done in the large and well-equipped sterilizing room in the basement of the Guild House. Not far from this room is another which is used for disinfecting purposes.

Among the subjects discussed at the annual meeting of the Advisory Board and Executive Committee, held October 27, 1903, was the Diet Kitchen. At the regular meeting of the Board of Managers, held in November, 1903, it was decided to make the Diet Kitchen an experimental department in the near future. Preparations for the work were begun in September, 1904, by the settling and suitable furnishing of the dining-room and kitchen in the new Guild House. Both of these rooms are well equipped with closets and appliances for the work. In the dining-room is a gas range and porcelain-lined sink which can be separated from the rest of the room by a screen; the gas fixtures are from the side walls rather than from the ceiling, this illumination being more desirable for evening class work. The kitchen has a large coal range, hot water boiler and large sink. Opening out of this room is a store-room in which is the beautiful refrigerator built by the Chryslers, of Detroit, Michigan, whose patent it is. This refrigerator, with its large ice chamber filled from the outside, registers an even temperature of 40°. Its compartments are finished with tiles, and the capacity indicates the large possibilities for carrying forward the Diet Kitchen along the most approved methods.

The first of October, 1904, the nurses began to have table board in the Guild House, so that the first work under the Diet Kitchen was the culmination of the home life for the household. The last week in October the people of Albany had the opportunity of inspecting the Guild House. The first of November the Diet Kitchen was definitely opened for orders, and classes in cooking. Already the outlook is encouraging, and also opportunities for helping in philanthropic work are at hand. Demonstration lessons in cooking have been arranged for the Girls' Friendly Society in Troy. The Samaritan Hospital Training School in Troy and the Homoeopathic Training School in Albany desire lessons in diet cooking for their pupil nurses, and later on, when the Diet Kitchen has passed its experimental stage, there will be plans for carrying practical lessons in thrift, economy and food values into the homes of the poor.

The sixth of January, 1904, the Board of Managers voted to have a permanent home; the Advisory Board approved of this action at a special meeting on the twelfth of January, 1904. February 3, 1904, the deed for the property, 390 Madison avenue, was signed, sealed and recorded. Extensive repairs and alterations were begun at once; the building was thoroughly renovated; a steam heating furnace was put in; the drainage had special attention; three fine bath rooms besides one toilet room were included in the plans. New floors were laid. Wall paper and paint had due consideration, and when, on the last day of April, 1904, the House Committee welcomed the nurses, it was to a beautiful home suitably furnished and complete in every detail for the comfort of a household, and adapted in every regard for the continued broadening and development of work.

It was the unanimous opinion of the Advisory Board that the name of the corporation should now be changed to The Albany Guild for the Care of the Sick, this being one that would cover the whole work and more accurately define its scope. This opinion was adopted at the meeting of the Board of Managers, held November 2, 1904, and steps are to be promptly taken towards the legal change in the name.

It is fifteen years since the Fruit and Flower Mission was transformed into a practical work with the employment of a graduate nurse, and it is seven years since the work was incorporated.

The first formal report made in February, 1897, showed that the number of families visited during the year was 221, and the number of visits by the nurse was 1,758.

The report for the year ending February, 1904, gave the number of cases attended 780; total number of visits for the year

10,945. There are now five graduate nurses in the employ of the Guild.

Unlike the work in other cities, there is no hour limit. Guild nurses, like physicians, are on call at all times, and their hours are regulated by the condition of patients under their care. The Guild recognizes the demand made upon the nurses, and requires that each nurse has two days in each month off duty, and desires that this rest be taken outside of the Guild House, preferably in some suburb of Albany.

The first formal report was issued in February, 1897, which gave the number of families visited, 221; the number of visits made by the nurse, 1,758; the number of physicians is not given.

The report for year ending February 1, 1904, gave the number of cases attended 780; total number of visits for the year, 10,945. Cases were reported to the Guild by the city physician, by all the health physicians and by eighty-two other physicians, six dentists.

Public Health

Edited by Joseph D. Craig, M. D.

Department of Health—City of Albany, N. Y.

The total number of deaths occuring in this city during the month of October, 1902, 1903 and 1904 is practically the same, and the total resident death rate of 16.00 is constant during the three years. There were 136 deaths in the city during the month of October, 1904; the death rate less non-residents was 14.83. There were ninety-seven births reported, but it is still evident that all births occurring in the city are not properly reported to the Department. A slight increase in the number of deaths from pneumonia and Bright's disease is to be noted, and consumption claims 21 victims this year as against 16 last year and 26 the year before. It is a remarkable tribute to the healthfulness of the city that not a single death occurred during the month of October from either typhoid fever, scarlet fever, diphtheria, measles or whooping-cough.

Seventy-one cases were assigned to the health physicians for treatment, and 387 calls were made by them. Twenty-six vaccinations were made, 4 cases were sent to hospitals and 82 prescriptions were given out.

One hundred and five vaccine points were furnished physicians during the month.

Several tests were made of the milk supply, and in each case the milk was found to correspond to accepted standards. The Department is in position to make tests of butter fats and total solids of milk, but not of adulterations or of bacteriological contaminations. A great deal can be told, however, of the availability of milk for domestic use from testing its physical properties, and any citizen who desires to ascertain these qualities of the milk delivered to him can do so free of charge by applying at the Department of Health.

Eleven plans were submitted for new buildings, which indicates somewhat an increase in building activity in this city.

Another decline is noticed in the number of contagious diseases in the city, a total of 27 cases reported this year as against 30 the year before, 83 during the year 1902, and 110 during 1901. There were 9 cases of typhoid fever, 2 of scarlet fever, 9 of diphtheria and croup, 1 of chicken-pox, 4 of measles, 1 of whooping-cough, and 1 of phthisis reported. Of the 9 cases of diphtheria antitoxin was used in every case. The average number of days quarantine for diphtheria was only 16, for scarlet fever 25 days. This is a marked saving, resulting from the postal card system, previously explained, in comparison with the old system of 21 days quarantine for diphtheria and four weeks quarantine for scarlet fever.

Bureau of Vital Statistics

Deaths

	1901	1902	1903	1904
Consumption	16	26	16	21
Typhoid Fever	0	0	3	0
Measles	0	0	5	0
Scarlet Fever	0	0	1	0
Whooping-cough	0	2	0	0
Diphtheria and Croup	6	4	0	0
Grippe	0	0	2	0
Diarrhœal Diseases	2	5	7	3
Erysipelas	1	0	0	0
Pneumonia	8	9	7	12
Broncho-Pneumonia	1	0	0	0
Bright's Disease	7	11	12	15
Apoplexy	11	10	14	2
Cancer	8	8	7	9
Accidents and Violence	13	7	8	9
Under one year	17	9	14	18
Seventy years and over	20	16	26	23

Deaths in Institutions

	Total.	Non-resident.	Total.	Non-resident.	Total.	Non-resident.	Total.	Non-resident.
Albany Hospital	13	7	13	6	20	10	16	8
Albany Orphan Asylum	1	0	2	1	3	0	1	0
Child's Hospital	1	1	0	0	3	0	1	0
County House	4	1	4	2	3	0	5	1
Homeopathic Hospital	1	0	2	0	0	0	2	0
Hospital for Incurables	0	0	1	0	0	0	0	0
House of Good Shepherd	0	0	1	0	0	0	1	1

Little Sisters of the Poor	3	0	2	0	0	0	0	0
Penitentiary	0	0	1	1	0	0	0	0
Public Places	0	0	3	3	2	2	0	0
Sacred Heart Convent	1	0	0	0	1	0	0	0
St. Margaret's House	5	3	0	0	1	1	4	1
St. Peter's Hospital	7	2	3	1	1	1	1	0

	1901	1902	1903	1904
Total number of deaths	126	136	137	136
Total number of deaths less non-residents	111	122	122	126
Death rate	15.13	16.00	16.12	16.00
Death rate less non-residents	13.06	14.35	14.35	14.83

Births at term	91
Still births	5
Premature births	1
Total	97
Marriages	66

WORK OF HEALTH PHYSICIANS

	1902	1903	1904
Assignments	32	54	71
Number of calls made	240	190	384
Vaccinations	21	4	26

INSPECTIONS

In the Bureau of Markets and Milk, there were 53 markets inspected, 15 inspections made of public market, 5 fish peddlers were inspected, 2 slaughter houses, 21 milk peddlers. Fifteen pounds of bologna was destroyed, 45 pounds of beef was condemned and destroyed. Two samples of milk were taken of which six tests were made.

RESULTS OF MILK TESTS

Temperature.	Specific Gravity.	Butter Fats.	Corrected S. G. at 60°	Solids.
68°	30	4.2	31	12.8
65°	28	3.6	28.6	11.6
53°	28	3.5	27.3	11.2

In the Bureau of Plumbing, Drainage and Ventilation there were 186 inspections made of which 99 were of old buildings and 87 of new buildings. Inspections were made of 36 iron drains, 20 connections with street sewers, 20 tile drains, 35 cesspools, 36 wash basins, 35 bath tubs, 30 wash trays, 39 sinks and 72 tank closets. One hundred and twenty-three permits were issued of which 97 were for plumbing purposes and 26 for building purposes. Six houses were tested on complaint with the peppermint test. Twenty-four plans were submitted for approval, of which 13 were of old buildings and 11 of new buildings. Twenty inspections were made of complaints and 14 reinspections.

In the Bureau of Nuisance, there were made 26 complaints, of which 2 were of privies, 4 of closets, 7 of plumbing, 6 of water, 1 of filthy alleys, 1 of manure, 1 of chickens. Twenty-one inspections were made and 29 reinspections. In five cases complaints were found to have been made without cause, and on reinspection 15 cases were found to be abated. Seven cases were referred to the Commissioner of Public Safety, and 1 hearing was held.

There were 100 mercantile inspections made; 3 violations were found; 18 mercantile certificates were issued to children, and 7 factory certificates.

CONTAGIOUS DISEASE

Cases Reported

	1901	1902	1903	1904
Typhoid Fever	11	13	3	9
Scarlet Fever	3	7	5	2
Diphtheria and Croup	89	59	24	9
Chickenpox	4	8	3	1
Measles	3	0	4	4
Whooping-Cough	0	0	0	1
Consumption	0	0	0	1
Total	110	87	39	27

Fumigations:
Houses................6 Rooms..................14
Number of days quarantine for diphtheria:
Longest......26 Shortest..... 7 Average......15 4-5
Number of days quarantine for scarlet fever:
Longest......28 Shortest.....22 Average......25
Number of cases of diphtheria reported.......................... 9
Number of cases in which antitoxin was used.................... 9

BENDER LABORATORY REPORT

Diphtheria

	1902	1903	1904
Initial positive	52	33	9
Initial negative	40	30	14
Release positive	33	60	2
Release negative	21	53	5
Failed	10	5	..
Total	156	186	30

Tuberculosis

Initial positive	1	0
Initial negative	1	1

Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Medical Society of the County of Albany was held in Alumni Hall, Wednesday evening, November 9, 1904. The President called the meeting to order at 8:45 P. M.

The members present were: Drs. Bedell, Boyd, Cochrane, Cook, Curtis, George, W. H., Goewey, Gutmann, Hun, Happel, Jenkins, Lanahan, Le Brun, Lipes, Lomax, Macdonald, MacFarlane, MacHarg, Merrill, Moore, C. H., Mosher, Neuman, Papen, Pearce, Rooney, Shaw, Vander Veer, Albert, Winne, C. K.

DR. PEARCE moved that the minutes of the previous meeting be adopted as printed in the ANNALS. Seconded. Carried.

No other business being before the Society DR. PEARCE opened the symposium on appendicitis by his paper on the pathology of the disease.

DR. MACDONALD then read a paper on the surgical aspects of appendicitis.

DR. MACFARLANE completed the symposium by a paper considering the medical aspect of the question.

DR. HAPPEL, who opened the discussion, then spoke in part as follows: He felt rather hampered inasmuch as he had been asked to consider the disease as it occurred in children. The trouble is not very frequent before the fourth year, but from this time up to the thirteenth the disease steadily increases. The presence of foreign bodies in the appendix is frequent in children, as are also quite severe types of the disease. The comparatively great length of the appendix in children is a predisposing factor. The forms in the older child are quite like those occurring in the adult. The simple catarrhal form is very often mistaken for colic or indigestion. In his experience the majority of the cases had relapses. The distinctive symptoms are: pain, vomiting and constipation. In the fortunate cases pain will subside after the first ten days. The diagnosis of appendicitis in children is frequently exceptionally obscure and difficult. He narrated a case which had recently come under his observation in which the ten-year-old child came into the dispensary complaining of frequency of urination, vesical tenesmus, and pain at the end of micturition. Upon examination there was found a marked tender tumor in the right iliac fossa with cutaneous hyperæsthesia in the region of the eleventh dorsal segment. He has had three cases of diffuse peritonitis following appendicitis, of which one died, one recovered without operation, which he considered very remarkable, and the other recovered after operation. The disease most frequently mistaken for appendicitis in children is right-sided pleurisy with or without basal pneumonia. A careful physical examination, however, in every case will prevent mistakes. But there are cases reported in which it took three or four days to clear up the doubt. His opinion was that appendicitis is largely a surgical affection.

DR. ALBERT VANDER VEER said that he felt some reluctance to enter upon the discussion because the papers differed so widely in the tendencies to treatment. He felt that the paper of Dr. MacFarlane was a very dangerous one for the physician, especially for the young men. He felt sure that if widely diffused it would work a great deal of harm in unduly postponing operation in cases which promptly demanded it. He felt that he must oppose absolutely the conclusions presented by Dr. MacFarlane. He said that he was at present very much interested in cases showing abnormal location of the appendix and he had a very thorough conviction that whenever an appendix was found over long, or with a kink or twist, or fast behind the cæcum it should be removed. The pathologist was frequently mistaken by the appearance of the appendix when it reaches the laboratory because the condition of the organ has undoubtedly undergone some change. He thought that the suggestion of Dr. Pearce that the clinician, surgeon, and pathologist work together in unison toward the elucidation of the problem was in the right direction. He decidedly agreed with the conclusions of Dr. Macdonald. He had recently seen a case which if it had had an early operation would undoubtedly have recovered, while, when seen it was beyond hope. In regard to the mortality of appendicitis and the number of cases requiring operation, he had found in looking over his case-book, of two hundred cases seen personally, either in his own practice or in consultation, that sixty per cent. had but one attack; twenty per cent. had one or two relapses with ultimate recovery without operation; the other twenty per cent. were desperate without surgery. He said that he had under his care at present a case in a young girl who has recovered from her single attack within the past few days. When advised to wait a few weeks in order that an interval operation might be performed she demanded an immediate operation, saying that she had lost within a few months during this last summer, two of her intimate friends from appendicitis and preferred not to take the risk of waiting. He could not refrain from saying again, that in his opinion Dr. MacFarlane's was a very dangerous paper.

Dr. Cook said that one could not but remark the difference in treatment of this condition now in the way of early and complete operation from that in vogue just after his advent into active practice many years ago.. The differences in treatment were not, in his opinion, any more remarkable than the differences in results. In those days recovery was the exception; now the rule, if operation was done. He could not endorse the paper of Dr. MacFarlane because of the opposition of his own experience. The general practitioner should always err on the side of safety and call the surgeon in too early, rather than too late. He said that owing to the early surgical treatment of his patients he had had no death from appendicitis within the last ten years.

Dr. Neuman said that Dr. Pearce mentioned with much justice the relation between movable kidney and appendicitis. He had been much disappointed in the behavior of the leucocytes as a means of diagnosis and prognosis in appendicitis. In fact he felt that absolutely no dependence could be placed upon a leucocytosis except as corroborative evidence. He related many of the symptoms occurring during and between the attacks from which he had suffered to show especially the discomfort and the disability arising from the disease, relief from which was in his opinion, in many cases, a sufficient indication for operation. He felt that the expressions of Dr. Cook were very valuable because he (Dr. Neuman) thought that the general practitioner was the best judge of the results of differing methods of treatment. Also could he not let the statement of Dr. MacFarlane go unchallenged that total rest of the intestinal tract was compatible with the administration of sweetened water. Fleiner had shown that water was not absorbed from the stomach but was promptly expelled into the intestine except when it contained small amounts of alcohol. He felt that this accounted for the fact that his German friends across the water could with impunity indulge in such large potations. Moreover as concerning the value of statistics it had been said that "figures don't lie, but liars can figure." The value of statistics depends upon the source from which they were drawn.

Dr. Hun said that he felt that it would be unfortunate for the discussion to be left at this point. It was idle to say that all cases of appendicitis should be treated surgically. Even Dr. Macdonald treats some cases medically—as he had himself witnessed—when he waits for an interval operation. He said that of say fifty cases he had had, in some of which he had called in a surgeon, and which were treated medically, none were dead. It was true, however, that some of these cases had had recurrences, sometimes two, sometimes three to five. Many of his patients had complained of the symptom mentioned by Dr. Neuman as present between attacks, *i. e.*, pain on stepping down from a height suddenly. He did not deny that he might have a severe case at any time which might demand immediate operation. The question he thought had been confused. The point he felt that was most at issue was not the extreme difference in treatment, but rather the kind of case that needed operation and the kind of case that did not. For himself, in cases which had had no relapse or only one after a long time, he did not advise operation.

Dr. Pearce said that his statements did not in any way reflect upon the surgeon. In fact he took great care not to appear prejudiced. There was one point that he could not pass by without correction. When Dr. Macdonald made the statement that no pathologist had in any way contributed to our knowledge of appendicitis, he must have forgotten that Fitz, who as Dr. Macdonald said, had contributed greatly to the knowledge of this disease, was at the time he published this paper, Shattuck Professor of Pathology at Harvard University.

Dr Macdonald said that one could not say everything one wished at a meeting of this kind. He felt, moreover, that many things were better left unsaid. Concerning statistics, they could be made to say anything the statistician pleased. The hospitals from which Dr. MacFarlane had quoted as showing a high surgical death rate in the treatment of appendicitis, were among those which he had visited himself. They never knew how to treat properly a case of appendicitis by surgery. It was in this sort of place that asepsis was ignored. Everything was dirty and infection the rule. Here it was that one could see five yards of gauze taken out of an appendiceal wound two or three days after the operation. He thought it was significant that no (?) American statistics were quoted. He could always tell when asked by some clinicians to see a case of appendicitis with them in consultation, the condition in which the patient would be found. "A pulse of 140, if it could be found; immense tympanites; legs cold up to the knees; a belly hard as a board and respirations of fifty." Even then the surgeon was expected to operate and the result credited to surgery. He thought it would be a good lesson for these men if the surgeon would refuse to operate upon this sort of case. He was sure that the necessity of shouldering the blame for the result of their own treatment, and the necessity for explanations to the immediate family would be likely to have a very sobering influence.

Dr. MacFarlane holds to the point that the question to be decided is that of the best time for operation. He truly believed that if all cases of appendicitis were operated within the first twelve hours the mortality would be in the neighborhood of one per cent. Recovery from the acute attack depends upon the localization of the inflammation and rest in bed with absolute abstention from food and drink for a greater or less period, best obtained this result, at times together with the administration of opium. He thought that the value of large statistics was much more reliable than the limited personal experience of any man. Of course if a man felt that the facts presented by statistics were untrue he could very well follow his own in which he had absolute confidence. He would like to ask Dr. Macdonald what were Ochsner's statistics if they weren't American? Concerning the leukocyte count he thought the figures from Sonnenberg's clinic stood for themselves and needed no bolstering. He did not think they claimed too much. His position on the subject could be summed up thus: the patient should be put in the hospital at the beginning of the attack and kept under careful medical attention. The further course of the attack determined the necessity for operation.

Dr. Curtis moved an adjournment. Seconded. Carried.

James F. Rooney, *Secretary.*

James P. Boyd, *President.*

Medical News

Edited by Eugene E. Hinman, M. D.

The Albany Medical College Alumni Association of New England. —The sixth annual meeting of this Association was held October 27, 1904, at the Hotel Cooley at Springfield, Mass. Thirty members were registered. The Secretary reported that there were one hundred and thirty graduates in the New England States, a large number of whom had manifested great interest in the Association. He expected before another year over half of this number would be enrolled. An obituary address of Dr. O'Flaherty, the Treasurer of the Association, was read by Dr. Ensign, a graduate of '59. The President, Dr. Crothers, delivered the annual address, an abstract of which follows. Professor Albert Vander Veer of Albany, delivered the regular address of the Association. His subject was "Surgery Thirty Years Ago and To-day." It was a most interesting contrast of operating in the sixties and the same operations to-day showing the marvelous advances which had been made. Dr. T. H. Willard of New York city, President of the Greater New York Association, and Dr. J. A. Cotter of Poughkeepsie, President of the Alumni Association of the College, addressed the Association, after which the following officers were elected for the ensuing year: President, Dr. Thomas D. Crothers of Hartford, Ct.; Vice-President, Dr. A. E. Abrams of Hartford, Ct.; Secretary, Dr. W. H. Murphy of Hartford, Ct.; Treasurer, Dr. A. H. Hoadley of North Hampton, Mass. The next annual meeting will be held in Hartford, Ct.

The banquet in the evening was very enjoyable. Dr. Vander Veer responded to the toast of the Albany Medical College, describing the work done and the prospects for the future. Dr. Cotter spoke of the general Alumni Association and its interest in the new college building. Dr. Willard spoke of the New York Association, and Dr. Crothers of the New England Members of the Association. Dr. Broga of Springfield, described the New England physician and some of the peculiarities of his associations and work. It was noted that this was the most enthusiastic meeting ever held by the Association.

Dr. Crothers's Presidential address was entitled "The Psychosis of Medical Colleges." The following is an abstract from the address:

"The question has often been asked, Why should the Albany Medical College have attained an eminence beyond that of other inland schools away from the great centres? During all its history of nearly seventy years, it has attained a wide influence, and the respect of the profession, and has been regarded as among the leading medical colleges of the country. During that period many colleges have been established and have been given up in the interior cities, passing through many changes, and while doing good work at the time have lacked permanence and stability. The Albany College has stood alone without any university connections until the last few years, and now in common with other schools it becomes the medical department of a university. This peculiar stability and uniform movement through all this long decade in which so many other colleges have come and gone, or changed and disappeared is clearly due to the personal psychosis of the early and later teachers, which has been handed down to the present. The early founders and professors were intense personal teachers who taught the science of medicine as an individual work, according to their best experience, judgment and reading. Those of us who were graduated in the sixties understand how this personality gave a peculiar vitality to the college and its work. Medicine was a living, vital subject, and not an abstract mass of cold, unrelated facts. We felt it in the presence of the professors, in their voice and manner. There was in this prospective, color, shade and mounting that appealed to the judgment and quickened the senses of each student. Thus matters of surgery, facts in medicine, and questions of drugs, and the art and skill in using these facts was a personal and veritable matter. Each student was made to think and judge of the relation and application of the truths he heard. It was this psychical impression by the teachers which roused up the individuality of the man, and in most instances was far more impressive than the mass of facts given. The graduate left the institution with a vivid impression of the science and art of medicine. Often if he went abroad, for more advanced instruction in the medical centres of Europe his enthusiasm was thoroughly chilled. There many of the great leaders without personality presented the facts of medicine in a cold, mechanical way, leaving the student to vitalize and invest them with a practical reality. I have seen many graduates of the Albany Medical College who had received the best instructions possible in Europe, who always referred to the teachings and teachers of the Albany Medical College as more practical and real, and more largely formative in their career than any other. It is hard to define in exact words this personal element which invests the work of the individual with enthusiasm that is contagious and impressive, and yet any observation will show that nearly all the great leaders in medicine and literature have had a distinct personality which gave power to their work and attracted enthusiastic students and followers. Without doubt this was a supreme consciousness of their work and its importance coupled with an intense desire to make others understand it as they did. Such men teaching the truths of medicine have profound earnestness and conviction, which gaves shape and form to all their work. The extreme of this is dogmatism, and the other extremity would be cold, doubtful and irresolute presentation of the facts. Students are quick to realize these distinctions, and are always impressed by the personal convictions of the teacher, if put in a judicial and emphatic way. He wants solid ground to start from, and needs clear directions as to the course and journey he is to follow. The early methods and means of teaching facts in the Albany Medical College invested with the sharp personality of the teacher, has always added and given unusual interest to the subject. I think each one's experience will bear out the impression that this individuality of the teachers will be remembered long after the facts are forgotten.

"There is in New England a special psychical atmosphere of individuality and independence of thought, from the humblest day laborer to the strongest professional man. Each one exercises the right of questioning the theory and motive of action, and demands reasons and rational explanations. The atmosphere is critical. The physician must be a positive character, his knowledge must be available and be recognized by his clients. The Albany medical graduate who has caught the real spirit of medicine fits in this niche at once, and the psychical influence of college life has in many ways given him a power to adjust himself to the conditions which perhaps a more learned student who lacks in this element would fail to acquire. Among the many examples illustrating this fact I might mention the late Dr. Strickland, who was graduated in 1839, and for over sixty years was the leading man of his community. While he was not a great man or learned in the scholastic sense, he was resourceful and always a student, and knew how to learn, and how to put the facts to the best use. He was psychically trained. The practice of medicine was an intense, personal, living theme. In his neighborhood lived a graduate of Harvard who had spent five years abroad and was a man of immense learning, who barely made a living and died disappointed, practically a failure. He had no psychical training. Medicine was a great treasure house, and the contents was a mass of cold, glittering facts which he could not put to practical use. He was a medical miser of great wealth, unavailable.

"The fact which I wish to make prominent is that this peculiar personality so prominent in the first decade of the Albany Medical College among its professors, and still a distinct feature in the large corps of teachers who are now at work should be promoted and receive our warmest endorsement. The psychical side of medicine and medical teaching is coming into prominence, and is a tremendous force hardly yet recognized in both the study and practice of medicine. Psychical therapeutics, practically the training of the mind to avail itself and utilize the forces that invest the subject of medicine, and the relations of the individual to the community is the coming topic of the future. We are all profoundly conscious that the terms suggestion, hypnotism, Christian and Mental Science, cover a mass of facts at present in the emperic stage. The popular teacher, the popular physician, the popular college, are all unconsciously using these hidden forces, and depend upon them for their prominence. It is no accident or chance that gives one man a power over others to impress his conceptions of science or literature, and create an enthusiastic following. It is simply the use of psychical forces following uniform laws which can be studied and understood. While we are all in deep sympathy and rejoice at the prospect of a new college building, which is certain to be erected in the near future, we all feel an intense desire that the psychical side of the college teaching shall grow wider and broader each year. If each student can be impressed with the psychical individuality of the teacher, and his ambition stimulated to pursue the vocation of medicine for something more than its remunerative reward, his success is assured. The future of medicine and its influence on civilization and humanity, depends on the scientific spirit and enthusiasm of the students who must be both explorers and teachers in every field of practice. In this spirit and hope our Association sends its warmest greetings to the old College at Albany with renewed pledges of interest and confident expectations that as the years go by our personal gatherings may more and more become helpful and pleasurable to ourselves and them."

Albany Medical College Alumni Association of the City of New York.—The tenth annual dinner of this Association will take place on Thursday, January 19, 1905, at eight o'clock P. M. at the "Hotel Astor," Broadway, Forty-fourth and Forty-fifth streets. Graduates residing in or near Greater New York are cordially invited to send their names and addresses to the Secretary.

A. Parker Muir, M. D., *Secretary,*
No. 204 W. 133d St.

Thomas H. Willard, M. D., *President,*
No. 1 Madison Ave.

New Building for the Albany Medical College.—The board of trustees of the Albany Medical College have voted to appropriate $5,000 for a new building for the college. The Honorable S. W. Rosendale was elected President and the Honorable Alden Chester, Vice-President of the Board. Luther H. Tucker was elected a trustee.

The Albany Hospital.—The eighth annual meeting of the patronesses of the Albany Hospital Training School for Nurses was held at the hospital on November 7th. These officers were elected: President, Mrs. Robert C. Pruyn; Vice-President, Mrs. Marcus T. Hun; Secretary, Mrs.

James McCredie; Corresponding Secretary, Mrs. O. N. Benedict; Treasurer, Mrs. S. W. Rosendale. The entire board of managers were reelected, as follows: Mrs. O. N. Benedict, Mrs. A. V. Bensen, Mrs. F. C. Curtis, Mrs. Marcus T. Hun, Mrs. J. Townsend Lansing, Miss Jane Knowles, Mrs. James McCredie, Mrs. George Douglas Miller, Mrs. G. H. Patterson, Mrs. Robert C. Pruyn, Mrs. Joel R. Reed, Mrs. Simon W. Rosendale, Mrs. Grange Sard, Mrs. H. King Sturdee, Mrs. W. J. Walker and Mrs. Samuel B. Ward.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR.—STATISTICS FOR OCTOBER, 1904. Number of cases, seventy-seven. *Classified as follows:* Dispensary patients receiving house treatment, three; district cases reported by health physicians, ten; charity cases reported by other physicians, eighteen; patients of limited means, forty-six; old cases still under treatment, twenty-eight; total number of patients under nursing care, one hunded and five. *Classification of diseases (new cases):* medical, seventeen, surgical, five; gynecological, four; obstetrical, twenty-four; twenty-four mothers and twenty-four infants under professional care: dental, one; skin, one; throat and nose, one. One contagious disease in medical list transferred to hospitals, two; deaths, seven.

Special Obstetrical Department: Number of obstetricians in charge of cases two; number of attending obstetricians one; number of students in attendance, five; number of Guild Nurses, four; number of leases, four; number of visis by Head Obstetrician, three; number of visits by attending obstetrician none; number of visits by students, thirty-two; number of visits by Guild Nurses, twenty-six; total number of visits for this department, sixty-one.

Visits of the Guild Nurses (all departments): Number of visits with nursing treatment, 775; number of visits for professional supervision of of convalescents, 176; total for the month, 951. Five graduate nurses and three assistant nurses on duty; cases were reported to the Guild by three of the health physicians and by twenty-three other physicians; dentist, one.

THE ALBANY GUILD FOR THE CARE OF THE SICK POOR held an "At Home" on Wednesday and Thursday, October 26th and 27th, at the new Guild House, 390 Madison avenue, for inspection of the home.

The Diet Kitchen has been opened in connection with the Albany Guild, and the interest and co-operation of physicians is asked in ur [illegible] in the success and helpfulness of this Department. The Superintendent is a trained worker with several years' experience in the preparations of diet and delicacies. A price list has been issued. Orders telephoned to the Guild House will have prompt attention. Modified milk and special diet for the sick are prepared from physicians' prescriptions.

STATE OF NEW YORK—STATE CIVIL SERVICE COMMISSION.—Open competitive examinations for physicians will be held in various cities throughout the State December 3, 1904, for the following positions: *Resident Physician,* State Industrial School, Rochester. *Fourth Grade Physician.*—This examination is intended to provide eligibles for the position of

Medical Interne and other medical positions of similar grade in the State hospitals and other State and county institutions.

Persons desiring to enter these examinations must execute applications on forms supplied by the Commission and file them in the office of the Commission before noon of November 28. Application blanks and further information regarding the character of the service and the nature of the examination for Fourth Grade Physician may be obtained by personal or written application to any of the following: Utica State Hospital, Utica, N. Y., Dr. H. L. Palmer, Superintendent; Willard State Hospital, Willard, N. Y., Dr. R. M. Elliott, Superintendent; Hudson River State Hospital, Poughkeepsie, N. Y., Dr. Charles W. Pilgrim, Superintendent; Middletown State Homeopathic Hospital, Middletown, N. Y., Dr. Maurice C. Ashley, Superintendent; Buffalo State Hospital, Buffalo, N. Y., Dr. Arthur W. Hurd, Superintendent; Binghamton State Hospital, Binghamton, N. Y., Dr. Charles G. Wagner, Superintendent; St. Lawrence State Hospital, Ogdensburg, N. Y., Dr. R. H. Hutchings, Superintendent; Rochester State Hospital, Rochester, N. Y., Dr. E. H. Howard, Superintendent; Long Island State Hospital, Flatbush, Brooklyn, N. Y., Dr. O. M. Dewing, Superintendent; Long Island State Hospital, Kings Park, L. I., N. Y., Dr. Wm. Austin Macy, Superintendent; Manhattan State Hospital, East Ward's Island, New York, N. Y., Dr. A. E. Macdonald, Superintendent; Manhattan State Hospital, West, Ward's Island, New York, N. Y., Dr. E. C. Dent, Superintendent; Manhattan State Hospital, Central Islip, Long Island, N. Y., Dr. G. A. Smith, Superintendent; Gowanda State Homeopathic Hospital, Gowanda, N. Y., Dr. D. H. Arthur, Superintendent; Matteawan State Hospital, Fishkill Landing, N. Y., Dr. H. E. Allison, Superintendent; Dannemora State Hospital, Dannemora, N. Y., Dr. R. B. Lamb, Superintendent; Pathological Institute, Ward's Island, New York, N. Y., Dr. Adolf Meyer, Director; Institution for Feeble-Minded Children, Syracuse, N. Y., Dr. J. C. Carson, Superintendent; State Custodial Asylum, Rome, N. Y., Dr. Charles Bernstein, Superintendent; Craig Colony, Sonyea, N. Y., Dr. W. P. Spratling, Superintendent. Or to the Chief Examiner, State Civil Service Commission, Albany, N. Y.

The Fourth Pan-American Medical Congress, which will convene in Panama the first week in January next, bids fair to be a most delightful mid-winter trip. The delegates will leave this country by the Atlantic, Pacific and Gulf Coasts the last week in December. They will return by the same routes or will make round trips.

The Public Health Association meeting will take place on the following week in Havana and those desirous of attending both meetings, can arrange to do so.

There are two routes for the physicians to take from Panama to Havana. The first is by the way of Jamaica to Santiago de Cuba by boat and overland by rail to Havana. The second is by water from Panama to Vera Cruz and from there to Havana. The former will probably be the most pleasant trip.

From Havana, the return trip can be made directly north to New York by water or via Miami or Tampa, Florida; or New Orleans. The connections and dates of sailing are now being arranged.

The Panamanian Government has appropriated $25,000 for the Scientific Session and the entertainment. The Congress will be held from the second to the sixth of January. The afternoons will be devoted to the Scientific Sessions and the morning and evenings to trips and social functions. So far as can be learned, the program in Panama will be a Reception on the first day, by President Amador of the Panama Republic, and the formal opening session of the Congress the same evening. On the second day, an excursion to the Canal in the morning, meeting of the various sections in the afternoon, and a banquet in the evening; on the third day, an excursion down the Bay to Taboga Island, where a Panama breakfast will be served, scientific sessions in the afternoon and a ball in the evening. On the fourth day, an excursion to the United States Army barracks in the morning, section meetings in the afternoon and the formal closing session in the evening. On the fifth day, an excursion to the plantation of the United Fruit Company; and on the afternoon of this day, those of the congresistas who intend going to Cuba to attend the meeting of the Public Health Association, will sail for Jamaica, while those who intend going by way of Vera Cruz, or returning home by way of New Orleans or New York, will remain until the following Tuesday.

The Secretaries of the Sections of the Congress for the United States, are Drs. A. H. Doty of New York, Hygiene and Quarantine; Judson Daland of Philadelphia, Medicine; R. Matas of New Orleans, General Surgery; Bert Ellis of Los Angeles, Eye; Hudson Makuen of Philadelphia, Throat; Frederick Jack of Boston, Ear; C. H. Hughes of St. Louis, Nervous Diseases; George Goodfellow of San Francisco, Military Surgery; John Ridlon of Chicago, Orthopedic Surgery; D. W. Montgomery of San Francisco, Dermatology; C. C. Kerley of New York, Pediatrics; Noble P. Barnes of Washington, Therapeutics; Walter Chase of Boston, Pathology.

Communications from physicians in the United States, interested in these branches, can be sent directly to these different Secretaries. Delegates intending to attend the Congress, desirous of obtaining information concerning it, should communicate with the Secretary of the International Executive Committee in the United States. Dr. Ramon Guiteras. 75 West 55th St., New York city.

THE NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY AND THE CARE AND TREATMENT OF EPILEPTICS.—The fourth annual meeting of this Association was held in the medical library "The Fenway," Boston, Mass., on November 22, 1904. Organization of the Association: Dr. Wm. N. Bullard, Boston, President; William Pryor Letchworth, LL. D., (Glen Iris,) Portage P. O., N. Y., First Vice-President; Prof. Wm. Osler, M. D., Baltimore, Md., Second Vice-President; Dr. Wm. P. Spratling, Supt. Craig Colony, Sonyea, N. Y., Secretary and Treasurer. Executive Committee: Dr. Wharton Sinkler, Philadelphia; Dr. Wm. N. Bullard, Boston; Hon. Wm. P. Letchworth, New York; Dr. Max Mailhouse, New Haven, Ct.; Dr. Wm. F. Drewry, Petersburg, Va. Objects of the Association: (1) To promote the general welfare of sufferers from epilepsy; (2) To stimulate the study of the causes and the methods of cure of this disease; (3)

To advocate the care of epileptics in institutions where they may, (a) Receive a common school education; (b) Acquire trades; (c) Be treated by the best medical skill for their malady; (4) To assist the various States in America in making proper provisions for epileptics.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for a year of the bequest of the late Senor Alvarenga, and amounting to about $180, will be made on July 14, 1905, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1905. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1904 was not awarded, no essay of sufficient merit, in the judgment of the committee having been submitted in competition.

COLUMBIA ANNIVERSARY.—Columbia University's celebration of its one hundred and fiftieth anniversary, October 31, was marked by the the conferring of the following degrees to those well known in medical work: The degree of Doctor of Laws was conferred on Prof. Edward Gamaliel Janeway, Prof. Francis Delafield, Dean William Mecklenburg Polk, Prof. John Green Curtis, Prof. William Henry Welsh, Dr. Andrew James McCosh and Prof. Walter Belnap James. The degree of Doctor of Science was conferred on Prof. William Stewart Halsted, Prof. Moses Allen Starr, Prof. Luther Emmett Holt, Prof. George Sumner Huntington, and Dr. Ernest Joseph Lederle.

THE OSLER MEMORIAL.—Although it is stated that the committee has not arrived at a definite decision, the Osler memorial building is being generally discussed and the idea meets with universal approval. It has been suggested to purchase Dr. Osler's residence, No. 1 Franklin Street, West Baltimore, and adapt it to the purpose. Dr. Osler's deep interest in and servces to the medical library render it appropriate as the instrument for commemorating his life and work. Dr. Osler's many friends throughout this country and Canada will doubtless be most happy to contribute to making this project a success.

MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT.—The Sixth edition of the Medical Directory of New York, New Jersey and Connecticut, compiled under the auspices of the New York State Medical Association follows the same general order as the editions which preceded it, and is accordingly practical, neat and valuable. The total number of physicians noted in New York State is 11,746; in New Jersey, 2,176, and in Connecticut, 1,282. Polk's directory for 1904 gives the figures as New York State, 13,638; New Jersey, 2,360, and Connecticut, 1,434, and the Standard Directory for 1903-1904 states that there are 12,995 physicians in New York State; 2,245 in New Jersey, and 1,288 in Connecticut.

New Building for College of Physicians.—At the last meeting of the College of Physicians of Philadelphia, plans were submitted for a new building, to cost $240,000. The building will provide shelves for 30,000 volumes, a floor for museum exhibits, a large lecture and assembly room, with other rooms and modern conveniences. The college has at is disposal, including cash and real estate, about $370,000. The site for the new college purchased at Twenty-second and Ludlow streets for $80,000 has been condemned. A committee, therefore, has been selected to report on new sites at the next meeting. It is probable that the new building will be erected on the present site of the college at Thirteenth and Locust streets.

Personal.—Dr. George H. Reynolds (A. M. C., '91) is at Alamogordo, New Mexico.

—Dr. Robert B. Lamb (A. M. C., '91), who has been Medical Superintendent of the State Hospital for Insane Convicts at Dannemora, N. Y., since its opening, has accepted the Superintendency of the Matteawan State Hospital, Fishkill-on-the-Hudson, N. Y., made vacant by the death of Dr. Henry E. Allison.

Born.—To Dr. and Mrs. George Coopernail (A.M.C., 1900), of Bedford, N. Y., a daughter, on November 7, 1904.

Death.—Dr. DeWitt C. Wade (A. M. C., '60), died at Holly, Michigan, November 4, 1904, aged 68.

In Memoriam

Henry E. Allison, M. D.

Dr. Henry E. Allison, Medical Superintendent of the Matteawan State Hospital at Fishkill, N. Y., died at the Hospital on November 12, 1904, of nephritis, after an illness of three weeks. Dr. Allison's official duties threw him in contact with many Albany physicians, who are grieved to learn of his death. He was born at Concord, N. H., December 1, 1851, received his education in his native State, graduating from the classical and medical departments of Dartmouth College in 1875 and 1878, respectively, and entered the medical service of the New York State hospitals in the latter year as assistant physician at Willard. In 1889 he was made Medical Superintendent of the State Asylum for Insane Criminals at Auburn, which was later abandoned for the modern institution at Matteawan. The organization and development of the Matteawan State Hospital were accomplished by Dr. Allison, and to the labor, anxiety and responsibility of this work, his friends, who know his patience, his attention to detail, his conscientiousness will attribute the undermining of his strength, and the consequent inability to resist the more or less acute disease which terminated his life. The visible record of this life is the humane and kindly organization of the hospital to which he gave his force. No better monument can be desired. No better example could be adduced of the potency of gentle, undemonstrative firmness than the successful and acceptable administration of an institution for the custody of the most turbulent and degenerate of mankind. Fortunately for the permanency of the record Dr. Allison has written freely of his work, and numerous addresses and papers exist. His character was lovable. He had the rare capacity of never offending and of never sacrificing his principles. His ways were ways of pleasantness and all his paths were peace. The loss to his friends, to his patients and to the State he served so well will long be felt.

Current Medical Literature

NEW YORK STATE MEDICAL LIBRARY

Edited by Miss Ada Bunnell, B. L. S.

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